ALMADEN LAKE IMPROVEMENT PROJECT

Draft Environmental Impact Report
SCH# 2014042041

Prepared for

Valley Water

Clean Water • Healthy Environment • Flood Protection

December 2019

ESA

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ACRONYMS AND ABBREVIATIONS

°F	Fahrenheit
AB	Assembly Bill
ADMRT	Air Dispersion Modeling and Risk Tool
Af	acre-feet
afy	acre-feet per year
AMBAG	Association of Monterey Bay Area Governments
ANSI	American National Standards Institute
APE	Area of Potential Effects
APPWR	Alamitos Percolation Pond water right
ARB	California Air Resources Board
ASCE	American Society of Civil Engineers
BAAQMD	Bay Area Air Quality Management
BACT	Best available control technology
Bgs	Below Grand Surface
BMPs	Best Management Practices
BO	Biological Opinion
Board	Santa Clara Valley Water District Board of Directors
BRMs	Bedrock mortars
CAA	Clean Air Act
CAAQS	California Ambient Air Quality Standards
Cal/OSHA	California Division of Occupational Safety and Health
CalARP	California Accidental Release Prevention
CalEEMod	California Emissions Estimator Model
CalEma	California Emergency Management Agency
CalFire	California Department of Forestry and Fire Protection
Caltrans	California Department of Transportation
CAP	Criteria air pollutants
CARB	California Air Resources Board
CASQA	California Stormwater Quality Association

CBC	California Building Code
CCC	Central California Coast
CCR	California Code of Regulations
CDC	California Department of Conservation
CDFW	California Department of Fish and Wildlife
CDSM	Cement Deep Soil Mixing
CEC	Constituent of Emerging Concern
CEQA	California Environmental Quality Act
CESA	California Endangered Species Act
CFR	Code of Federal Regulations
cfs	Cubic feet per second
CGP	Construction General Permit
CGS	California Geological Survey
CH_4	Methane
CIWMA	California Integrated Waste Management Act
CIWMB	California Integrated Waste Management Board
CNPS	California Native Plant Society
CO	Carbon Monoxide
CO_2	carbon dioxide
CO_2e	CO_2-equivalent
CPUC	California Public Utilities Commission
CRPR	California Rare Plant Ranking system
CSC	County of Santa Clara
CUPA	Certified Unified Program Agency
CV	Central Valley
CVP	Central Valley Water Project
CWA	Clean Water Act
CY	Cubic yards
dB	decibels
dBa	A-weighted sound levels
DEH	Department of Environmental Health
DEIR	Draft Environmental Impact Report
District/Valley Water	Santa Clara Valley Water District
DLRP	Division of Land Resource Protection
DNL	Day-Night Average Level
DOGGR	Division of Oil, Gas, & Geothermal Resources

DOT	U.S. Department of Transportation
DPM	Diesel particular matter
DPM	Diesel Particulate Matter
DPR	California Department of Pesticide Regulation
DSOD	California Division of Safety of Dams
DTSC	California Department of Toxic Substances Control
EAP	California Energy Action Plan
EFH	Essential Fish Habitat
EIR	Environmental Impact Report
EPCRA	Emergency Planning and Community Right-to-Know Act
ESA	Environmental Science Associates
ESL	Environmental Screening Level
FAHCE	Fish and Aquatic Habitat Conservation Effort
FDOT	Florida Department of Transportation
FEIR	Final Environmental Impact Report
FEMA	Federal Emergency Management Agency
FESA	Federal Endangered Species Act
FHSZs	Fire Hazard Severity Zones
FHWA	Federal Highway Administration
FIFRA	Federal Insecticide, Fungicide, and Rodenticide Act
FMMP	Farmland Mapping and Monitoring Program
FTA	Federal Transit Administration
GHG	Greenhouse gas
GMP	Groundwater Management Plan
GWP	Global warming potential
HARP	Hotspot Analysis and Reporting Program
HCP	Habitat Conservation Plan
HFC	Hydrofluorocarbons
HOV	High-Occupancy Vehicle
HRA	Health risk assessment
HWCA	Hazardous Waste Control
Hz	Hertz
IBC	International Building Code
In/sec	Inches per second
IPCC	Intergovernmental Panel on Climate Change
IPR	Indirect potable reuse

IPR	Indirect Potable Reuse
JPA	Joint powers authority
KPIs	Key Performance Indicators
kWh	Kilowatt-hours
lake	Almaden Lake
LEDPA	Least environmentally damaging practicable alternative
L_{eg}	Equivalent Sound Level
LFGTE	Landfill-gas-to-energy
LID	Low Impact Development
L_{max}	Maximum Sound Level
LOS	Level of service
LS	Less than Significant impact, no mitigation required
LSAA	Lake or Streambed Alteration Agreement
LSM	Less than Significant impact with Mitigation
MBTA	Migratory Bird Treaty Act
MeHg	Methylmercury
MEI	Maximally exposed individuals
MMRP	Mitigation Monitoring and Reporting Program
Mph	Miles per hour
MRP	Municipal Regional Stormwater
MS4s	Municipal separate storm sewer systems
MSL	Mean sea level
MTC	Metropolitan Transportation Commission
Mw	Moment Magnitude
NAAQS	National Ambient Air Quality Standards
NAHC	Native American Heritage Commission
NCCP	Natural Community Conservation Plan
Ng/L	Mercury per liter
NHPA	National Historic Preservation Act
NI	No Impact
NMFS	National Marine Fisheries Service
NO	Nitric oxide
NO_2	Nitrogen dioxide
NOAA	National Oceanic and Atmospheric Administration
NOP	Notice of Preparation
NOx	Nitrogen oxides

NPDES	National Pollutant Discharge Elimination System
NPPA	Native Plant Protection Act
NWIC	Northwest Information Center
OEHHA	State Office of Environmental Health Hazard Assessment
OES	State Office of Emergency Services
OSHA	Federal Occupational Health and Safety Administration
OSPH	Open Space, Parklands and Habitat
Park	Almaden Lake Park
PCE	Passenger car equivalent
PFC	Perfluorocarbons
PG&E	Pacific Gas and Electric Company
PM_{10}	Particulate matter less than 2.5
$PM_{2.5}$	Particulate matter less than 10 microns
Pond	Los Alamitos Percolation Pond
PPV	Peak particle velocity
PRC	Public Resources Code
Project	Almaden Lake Improvement Project
PSD	Prevention of Significant Deterioration
PWRPA	Power and Water Resources Pooling Authority
RARE	Rare and endangered species
RCRA	Resource Conservation and Recovery Act
RMS	Root mean square
ROG	Reactive organic gases
ROW	Right of Way
RPS	Renewable Portfolio Standard
RWQCB	San Francisco Bay Regional Water Quality Control Board
SB	Senate Bill
SBWR	South Bay Water Recycling
SCVHP	Santa Clara Valley Habit Plan
SDC	Seismic design category
SEL	Sound Exposure Level
SF_6	Sulfur hexafluoride
SFBAAB	San Francisco Bay Area Air Basin
SHPO	State Historic Preservation Officer
SIP	State Implementation Plan
SJFD	San José Fire Department

SJPD	San José Police Department
SJUSD	San José Unified School District
SLR	Single Lens Reflex
SMP	Stream Maintenance Program
SPCC	Spill Prevention Control and Countermeasure
SPL	Sound pressure level
SR	State Route
SU	Significant and Unavoidable impact
SVP	Society of Vertebrate Paleontology
SWPPP	Stormwater Pollution Prevention Plan
SWRCB	State Water Resources Control Board
TAC	Toxic Air Contaminant
TC HCP	Three Creeks Habitat Plan
TIS	Traffic Impact Study
TMDL	Total Daily Maximum Load
TMP	Transportation Management Plan
TTLC	Total Threshold Limit Concentration
ug/L	Micrograms per liter
ug/m^3	Micrograms per cubic meter
uPa	Micro-Pascals
USACE	United States Army Corps of Engineers
USEPA	United States Environmental Protection Agency
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
VdB	Decibel notation
VMT	Vehicle miles traveled
VTA	Santa Clara Valley Transportation Authority
WGCEP	Working Group on California Earthquake Probabilities
WILD	Wildlife habitat
WPCP	San Jose / Santa Clara Water Pollution Control Plant
WQO	Water quality objective

GLOSSARY

acre-foot/year: The amount of water that covers one acre of land one-foot-deep in water, which equates to 325,851 gallons.

Active site: An active site is a site that is currently undergoing investigation and/or cleanup activities.

Alluvium: Consists of unconsolidated mixtures of gravel, sand, clay, and silt typically deposited by streams.

Anadromous fish: A fish born in fresh water, that spends most of its life in the sea and returns to fresh water to spawn.

Anoxic: Areas of sea water, fresh water, or groundwater that are depleted of dissolved oxygen and are a more severe condition of hypoxia.

Aquifer: A geologic rock formation (or, group of rock formations or part of a formation) that contains groundwater in the spaces between sediment grains, in voids, or in fractures. Use of the term aquifer is usually restricted to those water-bearing formations capable of yielding water in sufficient quantity to constitute a usable supply source.

A-weighted decibel (dBA): Since the human ear is not equally sensitive to all sound frequencies within the entire spectrum, human response is factored into sound descriptions in a process called “A-weighting,” expressed as “dBA.” The dBA, or A-weighted decibel, refers to a scale of noise measurement that approximates the range of sensitivity of the human ear to sounds of different frequencies.

Bathymetry: The measurement of depth of water in oceans, seas, or lakes.

Bioaccumulation: The accumulation of a substance, such as a toxic chemical, in various tissues of a living organism.

Bioconcentration: The process by with a chemical concentration in an aquatic organism exceeds that in the water as a result of exposure to a waterborne chemical.

Epilimnetic mixing: The mixing of the epilimnion layer (warmer, higher pH and dissolved oxygen surface layer of a thermally stratified lake) and the deeper hypolimnion layer (bottom layer of a thermally stratified lake).

Fishway: Another term for fish ladder; a contrivance for enabling fish to pass around a fall or dam in a stream.

Groundwater basin: An area underlain by permeable materials capable of furnishing a significant supply of groundwater to wells or storing a significant amount of water.

Groundwater replenishment/recharge: A hydrologic process in which water moves downward from surface water to groundwater.

Hazardous Materials: any item or agent (biological, chemical, radiological, and/or physical), which has the potential to cause harm to humans, animals, or the environment, either by itself or through interaction with other factors.

Hybernaculum: The winter quarters of a hibernating animal.

Hypolimnetic anoxia: Deep-water depletion of dissolved oxygen which usually occurs in summer due to organic loading and stagnation of bottom waters.

Indirect Potable Reuse (IPR): Recycled water treated to drinking water standards, which is blended with other environmental systems such as river, reservoir, or in the case of the project, a groundwater basin, before the water is reused.

Iteroparous: a reproductive strategy that is characterized by an organism have multiple reproductive cycles over the course of its life.

Level of service (LOS): A qualitative description of a facility's performance based on average delay per vehicle, vehicle density, or volume-to-capacity ratios. Levels of service range from LOS A, which indicates free-flow or excellent conditions with short delays, to LOS F, which indicates congested or overloaded conditions with extremely long delays.

Methylmercury: any of various toxic compounds of mercury containing the complex $CH3Hg^{-}$ that often occur as pollutants which accumulate in living organisms (such as fish) especially in higher levels of a food chain

Microbial methylation: The biological mechanism for the removal of microorganisms, especially bacterium causing disease or fermentation, through the process of converting them to methyl derivatives that are removed by volatilization.

Moment Magnitude: Moment Magnitude (Mw) is related to the physical size of a fault rupture and movement across a fault. Moment magnitude provides a physically meaningful measure of the size of a faulting event (CGS, 2002b).

Percolation Pond: A pond that acts as a hold facility while gravity allows the water to percolate or seep through the soil or other unconsolidated medium into the local water table.

Perennial stream: a stream or river that has continuous flow in parts of its stream bed all year round during years of normal rainfall.

Public Views: Are those that are experienced from publicly accessible vantage points.

Pump Station: A facility used to move water against gravity from one location to another.

Riparian: The land adjacent to a natural watercourse such as a river or stream. Riparian areas support vegetation that provides important wildlife habitat, as well as important fish habitat when sufficient to overhang the bank.

Semelparous: a reproductive strategy that is characterized by an organism having a single reproductive episode before death.

Special-status species: Several species known to occur within the general region of the program area are accorded “special status” because of their recognized rarity or vulnerability to habitat loss or population decline. Some of these species receive specific protection in federal and/or state endangered species legislation. Others have been designated as “sensitive species” or “species of special concern” on the basis of adopted policies of federal, state, or local resource agencies. These species are referred to collectively as “special-status species.”

Strike-slip: Refers to relative motion on either side of a fault that is primarily horizontal (as opposed to vertical). If straddling the fault, the right side of a right-lateral fault would move towards the observer.

Subbasin: A structural geologic feature where a larger basin in divided into a series of smaller basins with intervening intrabasinals highs.

Tertiary treatment: Tertiary treatment is the advanced treatment process, following secondary treatment of wastewater, before it is recycled or discharged to the environment. Tertiary treatment includes removal of nutrients such as phosphorus and nitrogen and practically all suspended and organic matter from wastewater.

Upgradient: Similar to upstream, an Upgradient location is the source of groundwater to down gradient locations.

Urbanized Area: as defined by CEQA Guidelines Section 15387 ‘urbanized central city or a group of contiguous cities with a population of 50,000 or more, together with adjacent densely populated areas having a population density of at least 1,000 persons per square mile.’

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CHAPTER S
Summary

S.1 Introduction

The Santa Clara Valley Water District[1] (District) is proposing the Almaden Lake Improvement Project (Project) at Almaden Lake Park (Park) in the City of San José (City). The Project would separate Alamitos Creek from Almaden Lake (lake) within the footprint of the lake, in order to improve physical habitat for native fish and passage for anadromous fish, while improving water quality and minimizing impacts to existing recreational features in the Park. The proposed improvements would include modification of the existing contour of Almaden Lake, with restoration of a creek channel within the existing lake area. Other measures would protect the existing lake area to support habitat and recreational beneficial uses, while promoting the water quality objectives laid out by the San Francisco Bay Regional Water Quality Control Board (RWQCB) in its 2018 Basin Plan amendment.

Developed as a partnership between the City and the District in the late 1970s, Almaden Lake Park is a 65-acre recreational facility that includes the 32-acre Almaden Lake, and offers to the public miles of hiking trails, biking, picnic areas, volleyball, bocce ball courts, pedal boating, and other recreational activities. However, due to historic mining activities upstream of Almaden Lake and the lake's deep bathymetry, mercury-laden sediment has become trapped in the lake, resulting in considerable buildup of mercury in lake sediments. Driven by anoxic conditions at the lake bottom, microbial methylation of mercury has resulted in high levels of methylmercury in water and fish. The lake is also subject to other notable water quality issues, including high temperature, high bacteriological count, potentially toxic algae blooms, and low dissolved oxygen. By implementing the proposed changes, the District aims to reduce methylmercury generation and improve overall water quality. In this way, the Project would promote the ability of the District to improve conditions in the lake for fish, while minimizing impacts on existing recreational features.

The District is the lead agency responsible for California Environmental Quality Act (CEQA) environmental review of projects (sponsored) by the District. CEQA requires the preparation of an Environmental Impact Report (EIR) when a project could significantly affect the physical environment. The District determined that the Project could potentially cause significant environmental impacts, and that preparation of an EIR was therefore required for the Project to comply with CEQA.

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1 The Santa Clara Valley Water District changed its name to Valley Water (https://www.valleywater.org/). However, the majority of the environmental impact report was written prior to the agency's name change, and the Santa Clara Valley Water District's former name is retained herein.

The District has prepared this EIR to provide the District's Board of Directors (Board), the public, and responsible and trustee agencies reviewing this Project, with information about the potential physical effects, both beneficial and adverse, on the local and regional environment associated with implementation of the Project. This EIR was prepared in compliance with CEQA (California Public Resources Code, Sections 21000 et seq.), and the CEQA Guidelines (Code of Regulations Title 14, Chapter 3, Sections 15000 et seq.).

This EIR describes the Project under consideration by the District. The document characterizes the Project setting, discloses the range of potential environmental impacts of the Project, and identifies mitigation measures where those impacts would be significant. The EIR also addresses cumulative adverse impacts to which the proposed Project could make a substantial contribution. Also, as required under CEQA, it describes and evaluates potentially feasible alternatives to the Project that could avoid or reduce significant impacts while still meeting most of the Project's objectives.

S.2 Project Objectives

The Project purposes are to restore Alamitos Creek's function within the footprint of Almaden Lake Park in order to improve physical habitat for steelhead and other anadromous fish, while improving water quality within the lake footprint, and minimizing impacts to existing recreational features within the Park.

These purposes would be accomplished through the following objectives:

- Separate Alamitos Creek from Almaden Lake.
- Reduce production of methylmercury, and mercury in target fish in Almaden Lake
- Remove potential lake entrainment of anadromous fish.
- Improve temperature conditions and reduce predation for native fish.
- Minimize impacts to existing recreational features.

Separating Alamitos Creek from Almaden Lake would restore Alamitos Creek's upstream and downstream connectivity within the Guadalupe River Watershed, restoring habitat linkages for native fish and threatened anadromous fish species, and would create a geomorphically stable creek channel that would improve sediment transport and restore natural creek functions. Therefore, the Project would help to restore and maintain healthy fish populations by improving fish habitat and passage in the creek channel.

Leveling the irregular lake bottom (remnant of past gravel quarry operations) and capping existing elemental mercury in the lake bed soils would assist in addressing Almaden Lake's mercury-related water quality issues. Re-contouring the lake bottom, continuing effective control measures (e.g., operation of SolarBee solar powered circulators) to manage future methylmercury production and bioaccumulation in fish, and utilizing a water source that minimizes the reintroduction of mercury to the lake would promote the ability of the District to meet the water quality objectives laid out by the RWQCB in the 2008 Basin Plan Amendment (RWQCB, 2008).

S.3 Summary of Project Description

The proposed Project includes separating Alamitos Creek from the lake and restoring its upstream and downstream connectivity; re-contouring the lake bottom and capping it with clean fill; expanding the Park into the existing lake and beach areas; expanding the existing island and constructing a new island; revegetating the area with native vegetation; and developing a flow-through water system to circulate water through the lake by connecting the lake via pipeline to an imported water source and pumping water from the lake via pipeline to the Los Alamitos Percolation Pond for groundwater recharge. **Table S-1** below summarizes the Project components.

TABLE S-1
SUMMARY OF PROJECT COMPONENTS

Project Element	Description
Alamitos Creek Restoration	Separation of Alamitos Creek from the lake area
	Construction of a geomorphically stable, self-sustaining channel for Alamitos Creek
	11 acres of restored creek area
	20-foot wide levee along top with maintenance road and public trail
	Construct two maintenance access ramps into new creek area
Almaden Lake Separation	Separation of the lake area from Alamitos Creek
	17 acres of lake water surface area
	Reshaping of remaining lake bed and capping of mercury-laden sediment with clean clay
	Relocation of the boat launch ramp and boat house
Open Park Area Expansion	Addition of approximately 2 acres of open park area at the existing west beach and lake area
Island Areas Expansion and New	Expansion of existing island to 0.75 acres and construction of new 0.75 acre island
Almaden Lake Source Water Connection	Supplying of source water to the lake to maintain a water level between 188 feet and 190 feet above msl (consistent with existing conditions). Water would be supplied from the Almaden Valley Pipeline, which would provide imported raw water for use in the lake
Almaden Lake Connection to Los Alamitos Percolation Pond	Pumping Almaden Lake water via an outlet structure into a new pipeline connecting to Los Alamitos Percolation Pond for circulation.
Vegetation Installation	Installation of riparian vegetation along both sides of the new levee, west bank of the restored creek, and the islands

The key Project elements under consideration (Alamitos Creek restoration, Almaden Lake separation, open park area expansion, island areas, Almaden Lake source water connection, Almaden Lake connection to Los Alamitos Percolation Pond, and native revegetation) are presented in more detail in Chapter 2, Project Description. The District is presently considering two alignment options for the Almaden Lake connection to Los Alamitos Percolation Pond.

S.4 Summary of Impacts and Mitigation Measures

Table S-2 summarizes the impacts of the Project. For each impact considered to be significant or potentially significant, the table summarizes the recommended mitigation measures. Table S-2 is intended to provide a summary of the Project impacts and mitigation measures that are described in detail in Chapter 3*, Environmental Setting, Impacts, and Mitigation Measures* and Chapter 5, Cumulative Impacts*;* please refer to those chapters for a complete discussion of impacts.

S.5 Summary of Project Alternatives

This information can be found in Chapter 4, Alternatives, and presents the alternatives analysis for the Almaden Lake Improvement Project. Chapter 4, Alternatives sets forth the objectives of the Project, summarizes the Project's significant environmental impacts, describes the range of alternatives considered, compares the impacts of the alternatives evaluated to the impacts of the Project, and discusses the alternatives considered but eliminated from further analysis.

The State CEQA Guidelines, Section 15126.6(a), state that an EIR must describe and evaluate a reasonable range of alternatives to the project that would feasibly attain most of the project's basic objectives, but that would avoid or substantially lessen any significant adverse effects of the project. An EIR is not required to 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. The CEQA Guidelines further state that the specific alternative of "no project" shall also be evaluated. The EIR must evaluate the comparative merits of the alternatives and include sufficient information about each alternative to allow meaningful evaluation, analysis, and comparison with the impacts of the project.

The reasonable range of alternatives that would be able to attain most of the Project's objectives but also avoid or lessen any of the Project's significant environmental effects are summarized below.

S.5.1 Alternative 1: No Project

CEQA Guidelines Section 15126.6(e) requires that EIRs include an evaluation of the No Project Alternative to provide decision-makers the information necessary to compare the relative impacts of approving the Project and not approving the Project. The No Project Alternative is defined as a continuation of existing conditions, as well as conditions that are reasonably expected to occur in the event that the proposed Project is not implemented.

In the event that the District does not approve the Project, the restoration of Alamitos Creek and Almaden Lake would not occur. The open area in the Park and the existing island in the lake would not be expanded, and the additional island would not be created. The flow-through water management system from Almaden Valley Pipeline to the Los Alamitos

Percolation Pond would not be constructed. Restoration of levees, banks, and islands would not occur. Without these components in place, existing thermal barriers to anadromous fish would remain in place and anadromous fish would continue to be subject to predation by warm water predators in the lake. Finally, the lake would continue to experience high concentrations of coliform bacteria and blue-green algae blooms. Current prohibitions on water-based activities at and in the lake would remain in force based on water quality testing. This alternative would not meet any of the project objectives.

S.5.2 Alternative 2: Creek with East and West Lakes

The intent of Alternative 2 would be to reduce the short-term, construction-related impacts of the Project while fulfilling the project objectives. Alternative 2 would include the separation of Alamitos Creek from Almaden Lake, and the re-contouring and capping of the lake bottom. However, Alternative 2 would feature open water lake areas on both sides of the restored Alamitos Creek alignment, instead of a single lake to the east of the creek and new parkland to the west of the creek as proposed under the Project.

Because the West Lake area would be open water and not new park land, the amount of required fill would be reduced by nearly 70,000 cubic yards (from about 897,690 cubic yards under the Project [see Table 2-2 in Chapter 2, Project Description]). In addition, the construction period under Alternative 2 would be approximately 4 months less than under the Project (26 months as compared to 30 months under the Project), and construction-related impacts would be proportionately reduced. Alternative 2 would meet all of the project objectives.

S.5.3 Alternative 3: Creek with East and West Open Space Alternative

The intent of Alternative 3 would be to eliminate the operational noise impact of the pump station under the Project while fulfilling the project objectives. Alternative 3 would restore the Alamitos Creek alignment in a 5-acre corridor, and would address ongoing water quality issues in Almaden Lake by filling the lake and creating new park/open space areas to the east and west of the creek, instead of a single lake to the east of the creek and new parkland to the west of the creek as proposed under the Project.

The entire lake area would be converted to open space park land, with the exception of the 5-acre Alamitos Creek channel. In addition, the new park area to the west of the creek would more than double in size from approximately 2 acres under the Project to approximately 5 acres under Alternative 3. Given the increase in open space proposed under this alternative, Alternative 3 would require approximately 100,000 cubic yards more fill material than the Project. Even though the Alternative would not require construction of the transfer pipeline, placement of a considerable amount of additional clean fill to fill Almaden Lake would require a longer construction period than the Project, and construction-related impacts would be proportionately increased. Alternative 3 would partially meet project objectives.

S.5.4 Comparison of Alternatives and Environmentally Superior Alternative

The State CEQA Guidelines Section 15126.6(e) requires the identification of an environmentally superior alternative to the proposed project. To determine the environmentally superior alternative, the impacts of all the alternatives were compared to determine which alternative would have the least adverse effects:

- Alternative 1 would eliminate the short term construction effects relative to the proposed project. However, under Alternative 1 the existing water quality issues would continue, including mercury contamination (which is in exceedance of RWQCB water quality standards), low dissolved oxygen, coliform bacteria, and algal blooms. Numeric targets for fish tissue mercury concentrations would continue to be in exceedance of mercury thresholds. Also, existing barriers to anadromous fish migration would continue.

- Alternative 2 would reduce the short-term construction effects relative to the Project by utilizing approximately 70,000 cubic yards less fill material resulting in an approximately 4-month shorter construction period than the Project. However, ground disturbance associated with pipeline construction would be somewhat greater under this alternative (to provide a flow-through system for two separate lakes), potentially creating additional short-term disruptions of habitat. Additionally, Alternative 2 would require two pump stations to convey water to Los Alamitos Percolation Pond, although due to the smaller size of the pumps, operational noise levels would be similar to the Project

- Alternative 3 would eliminate the operational noise impact of the pump station under the Project, but in converting the lake to park land, would require approximately 100,000 cubic yards more fill material than the Project, which would require a longer construction period than the Project, and construction-related impacts would be proportionately increased.

Among the action alternatives, Alternative 2 is the environmentally superior alternative. While Alternative 1 reduced the environmental impacts from the Project, it was not chosen since it is a No Project Alternative that did not achieve the project objectives. While Alternative 3 eliminated the operational noise impact of the pump station under the Project, this alternative increased the short-term construction-related impacts as compared to the Project.

Alternative 2 would decrease the short-term, construction-related impacts as compared to the Project, resulting in reduced construction-related impacts to aesthetic resources, air quality, biological resources, energy resources, hydrology and water quality, and noise-related impacts. Ground disturbance associated with pipeline construction would be somewhat greater under this alternative to provide a flow-through system for two separate lakes, potentially creating additional short-term disruptions of habitat. Alternative 2 would also require two pump stations, however, the two pump stations would have a smaller capacity than the pump station proposed under the Project due to the reduced pumping requirements of the two lakes under Alternative 2. As a result, the noise generated by the two pump stations under Alternative 2 would be similar to the operational noise of the proposed Project's pump station. As a result, Alternative 2 would have reduced construction-related impacts as compared to the Project and Alternative 3, and similar operational noise impacts as the Project, and on balance would be the environmentally superior alternative.

S.6 Areas of Controversy and Issues to be Resolved

Pursuant to Section 15123(b)(2) of the CEQA Guidelines, an EIR shall identify areas of controversy known to the lead agency, including issues raised by agencies and the public and the issues to be resolved.

During the planning process, the District discussed several options for the Project site to separate Alamitos Creek from Almaden Lake, address the water quality issues of the lake and the regulatory requirements of anadromous fish passage, and meet the project objectives. Some preliminary options considered a substantially reduced lake footprint. Project stakeholders raised concerns about a substantially reduced lake feature at the Park. In addressing public concerns, the District developed a conceptual site plan that meets project objectives, and retains a sizeable lake feature at Almaden Lake Park.

There are no issues to be resolved other than the choice among alternatives and choice of mitigation measures (CEQA Guidelines Section 15123(b)(3).

TABLE S-2
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact	Significance Determination	Mitigation Measure
Aesthetics		
Impact 3.A-1: The proposed Project would not have a substantial adverse effect on a scenic vista.	LS	No mitigation required.
Impact 3.A-2: The proposed Project would not substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway or other designated corridor.	LS	No mitigation required.
Impact 3.A-3: The proposed Project would substantially degrade the existing visual character or quality of public views of the site and its surroundings and would not conflict with applicable zoning and other regulations governing scenic quality.	SU	No mitigation available.
Impact 3.A-4: The proposed Project would not create a new source of substantial light or glare which would adversely affect day or nighttime views in the area.	LS	No mitigation required.
Impact 5.A: Cumulative impacts on scenic resources (vistas, roadways, and designated scenic areas), scenic resources, or the visual character of public views of the Project area and its vicinity, or substantially increase light or glare in the Project area and its vicinity.	SU	No mitigation available.
Agricultural and Forest Resources		
Impact 3.B-1: The Project would not 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.	LS	No mitigation required.
Impact 3.B-2: The Project would not conflict with existing zoning for agricultural use, or a Williamson Act contract.	LS	No mitigation required.

LS = less than significant; LSM = Less than Significant with Mitigation; SU = significant and unavoidable.

TABLE S-2 (continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact	Significance Determination	Mitigation Measure
Agricultural and Forest Resources (cont.)		
Impact 5.B: Cumulative effects on agriculture resources during construction.	LS	No mitigation required.
Air Quality		
Impact 3.C-1: The Project would conflict with or obstruct implementation of the applicable air quality plan.	LSM	**Mitigation Measure 3.C-1a: *U.S. EPA Tier 4 Engines.*** The Santa Clara Valley Water District and/or its construction contractors shall be required to use off-road diesel construction equipment compliant with U.S. EPA Tier 4 nonroad engine standards. Prior to the commencement of construction activities, the construction contractor and/or the Santa Clara Valley Water District shall prepare an equipment list that identifies each piece of off-road equipment to be operated at the Project site by its equipment identification number (EIN) and demonstrates that each piece of equipment meets U.S. EPA Tier 4 nonroad engine standards. The list shall be made available at the construction site and shall be updated when new or replacement construction equipment are brought to the site. **Mitigation Measure 3.C-1b: *BAAQMD Basic Construction Measures.*** The Santa Clara Valley Water District and/or its construction contractors shall comply with the following applicable BAAQMD Basic Construction Mitigation Measures: BAAQMD Basic Construction Measures 1. All exposed surfaces (e.g., parking areas, staging areas, soil piles, graded areas, and unpaved access roads) shall be watered two times per day. 2. All haul trucks and railcars transporting soil, sand, or other loose material off-site shall be covered. 3. All visible mud or dirt track-out onto adjacent public roads shall be removed using wet power vacuum street sweepers at least once per day. The use of dry power sweeping is prohibited. 4. All vehicle speeds on unpaved roads shall be limited to 15 mph. 5. All roadways, driveways, and sidewalks to be paved shall be completed as soon as possible. Building pads shall be laid as soon as possible after grading unless seeding or soil binders are used. 6. Idling times shall be minimized either by shutting equipment off when not in use or reducing the maximum idling time to 5 minutes (as required by the California airborne toxics control measure Title 13, Section 2485 of California Code of Regulations [CCR]). Clear signage shall be provided for construction workers at all access points. 7. All construction equipment shall be maintained and properly tuned in accordance with manufacturer's specifications. All equipment shall be checked by a certified visible emissions evaluator. 8. Post a publicly visible sign with the telephone number and person to contact at Santa Clara Valley Water District regarding dust complaints. This person shall respond and take corrective action within 48 hours. The BAAQMD's phone number shall also be visible to ensure compliance with applicable regulations.
Impact 3.C-2: The Project would result in a cumulatively considerable net increase of a criteria pollutant for which the SFBAAB is in non-attainment under applicable federal and state ambient air quality standards.	LSM	**Implement Mitigation Measures 3.C-1a and 3.C-1b.**

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TABLE S-2 (continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact	Significance Determination	Mitigation Measure
Air Quality(cont.)		
Impact 3.C-3: The Project would expose sensitive receptors to substantial pollutant concentrations.	LSM	**Implement Mitigation Measures 3.C-1a and 3.C-1b.**
Impact 3.C-4: The Project would not result in emissions that lead to odors affecting a substantial number of people.	LS	No mitigation required.
Impact 5.C: Cumulative emissions of air pollutants.	LSM	**Mitigation Measure 3.C-1a: *U.S. EPA Tier 4 Engines.*** **Mitigation Measure 3.C-1b: *BAAQMD Basic Construction Mitigation Measures*.**
Biological Resources		
Impact 3.D-1: Construction or operation of the Project could have a substantial effect on special-status birds, common nesting migratory birds and raptors, and roosting bats in the Study Area.	LSM	**Mitigation Measure 3.D-1a**: ***Nesting Bird Protection Measures***. The District and/or its contractor(s) shall implement the following during construction of the proposed Project: • Removal of trees and scrub vegetation shall occur outside the bird nesting season (February 1 to August 31), to the extent feasible. • If removal of trees and vegetation cannot be fully accomplished outside of nesting season, a qualified biologist shall conduct preconstruction nesting surveys within seven days prior to the start of such activities or after any construction breaks of 10 days or more. Surveys shall be performed for the Study Area and suitable habitat within 250 feet of the project site to locate any active raptor (birds of prey) nests or rookeries. • If active nests are located during the preconstruction bird nesting survey, the qualified biologist shall evaluate if the schedule of construction activities could affect the active nests and the following measures shall be implemented based on their determination: – If construction is not likely to affect the active nest, it may proceed without restriction; however, a biologist shall regularly monitor the nest to confirm there is no adverse effect and may revise their determination at any time during the nesting season. In this case, the following measure would apply. – If construction may affect the active nest, the biologist shall establish a no disturbance buffer in consultation with CDFW. Typically, these buffer distances are 50 feet for passerines and between 300 feet for raptors. These distances may be adjusted depending on the level of surrounding ambient activity (e.g., if the project area is adjacent to a road or active trail) and if an obstruction, such as a building, is within line-of-sight between the nest and construction. For bird species that are federally and/or state-listed sensitive species (i.e., fully protected, endangered, threatened, species of special concern), a District or City representative, supported by the qualified biologist, shall coordinate with the USFWS and/or CDFW regarding modifications to nest buffers, prohibiting construction within the buffer, modifying construction, or removing or relocating active nests that are found on the site. – Any birds that begin nesting within the project area and survey buffers amid construction activities are assumed to be habituated to construction-related or similar noise and disturbance levels. Qualified biologist, shall coordinate with the USFWS and/or CDFW and determine if no work exclusion zones shall be established around active nests in these cases.

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TABLE S-2 (continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact	Significance Determination	Mitigation Measure
Biological Resources (cont.)		
Impact 3.D-1 (cont.)		**Mitigation Measure 3.D-1b: *Protective Measures for Bats*.** The District shall engage a qualified biologist to conduct a habitat assessment for suitable bat roost habitat features, followed by a preconstruction survey(s) of the Project area as needed in order to locate active colonies and/or special-status species, conducted in an appropriate timeframe in advance of initiation of tree trimming or removal, or disturbance to other potential roost features, and to plan work accordingly to avoid or minimize impacts. The preconstruction survey should include at a minimum: a) identification of potential direct and indirect Project-related disturbing activities; b) locations of potential roost habitat features; c) species identification and locations of active bat colonies or special status bats within or adjacent to the Project area, along with estimated numbers when possible; and d) a description of protective measures to be implemented prior to construction. No Project-related activities that could disturb active roosts shall proceed prior to the completed surveys. Should special-status bats be found in trees or structures to be disturbed under the proposed Project, or it is determined by a qualified biologist that Project activities would result in significant impacts to bats, the following measures shall be implemented: • Removal of trees shall occur when bats are active, approximately between the periods of March 1 to April 15 and August 15 to October 15; outside of bat maternity roosting season (approximately April 15 – August 31); and outside of months of winter torpor (approximately October 15 – February 28), to the extent feasible. • If removal of trees or disturbance to other roost features during the periods when bats are active is not feasible and active bat roosts being used for maternity or hibernation purposes are found within or in the immediate vicinity of the Project area where tree removal or other disturbance is planned, an appropriate no-disturbance buffer, determined by a qualified biologist, shall be established around the roost sites until they are determined to be no longer active by a qualified biologist. If special-status bats are identified, CDFW shall be contacted for further guidance. • The qualified biologist shall be present onsite to monitor during tree or habitat feature disturbance if active bat roosts are present. • Removal of trees containing or suspected to contain active bat roosts shall be removed under the supervision of the qualified biologist on the second day of a two-day removal process. Trees shall be removed through a two-phase process to significantly change the roost conditions by trimming branches during the first phase, causing bats, if present, to abandon the roost at night, before completely removing the tree on the second day. Trees with active roosts shall be removed only when no rain is occurring or is forecast to occur for three days, and when daytime temperatures are at least 50˚F. • If there are significant impacts to bat roosting habitat (e.g., maternity roosts or hibernacula of sensitive or special -status species, or large non-maternity roost sites of sensitive species, or any number of special status species) due to project activities, a qualified biologist experienced in successful bat mitigation techniques shall develop a Bat Avoidance Plan including adequate buffer zones and/or other requirements to minimize the impact to the roosting site.
Impact 3.D-2: Construction or operation of the Project would not have a substantial effect on California red-legged frog, foothill yellow-legged frog, and western pond turtle in the Study Area.	LS	No mitigation required.
Impact 3.D-3: The proposed Project would not have a substantial adverse effect on riparian communities.	LS	No mitigation required.

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TABLE S-2 (continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact	Significance Determination	Mitigation Measure
Biological Resources (cont.)		
Impact 3.D-4: The Project would not have substantial adverse effects on jurisdictional wetlands, other Waters of the United States and Waters of the State.	LS	No mitigation required.
Impact 3.D-5: The Project would not interfere substantially with the movement of any native resident or migratory wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites.	LS	No mitigation required.
Impact 3.D-6: The Project could conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance.	LSM	**Mitigation Measure 3.D-6: *Tree Protection Measures.*** Trees adjacent to the project area that are retained during construction can still experience irreparable damage to roots and other tree parts with excavation, compaction, mechanical injury, and/or over pruning for construction access. • Construction impacts shall be evaluated and planned to avoid locally native trees and other trees protected by City code. A site meeting with contractor, certified arborist, and other project personnel shall be conducted prior to construction to discuss tree protection measures and specific tree resources. The construction contract must include the on-call services of qualified arborist. • All pruning work shall be conducted or directly overseen by a certified arborist. All pruning shall be done in accordance with ISA “Tree Pruning Guidelines” and/or the ANSI A300 Pruning Standards. Pruning of limbs and roots shall be minimized and conducted during cool, dry weather outside the active growing season when feasible. Access needs and equipment clearance shall be determined well in advance of construction to help schedule required pruning work at a time that is least detrimental to the tree species involved. • Pruning of more than 25% of an individual tree’s canopy or crown in a single season shall be avoided. Removal of live limbs greater than 4 inches in diameter shall be avoided if possible or receive prior approval by a certified arborist. Selective removal of tree limbs for equipment access is always preferable to mechanical injury or incidental contact of equipment with tree parts during construction. Some branches may be tied back temporarily, rather than removed, to facilitate site access. • Establish a “Tree Protection Zone” (TPZ) around trees retained in the project area during construction. The TPZ shall be clearly marked and defined in the field using fencing or similar access deterrent and should be determined by the City’s Arborist, or the Project designated ISA Certified arborist. No grading, compaction, excavation, soil storage, equipment storage, hazardous material storage, removal of understory vegetation, or equipment operation shall be conducted in the TPZ. • Any grading, construction, demolition, or excavation work that may encounter live tree roots (from trees scheduled for retention in Project area) shall be monitored by a certified arborist. Roots may extend beyond the canopy dripline or there may be insufficient space available for an adequate TPZ. Compaction of undisturbed native soils shall be considered as part of root area impacted by construction. • When larger roots (>2-inch diameter) are encountered during construction, excavations shall only continue by hand or with smaller, hand-held tools (e.g. air spade) until sufficient root area has been exposed to cut it cleanly with a sharp instrument (e.g. pruning saw, cut-off saw, loppers) to remove the portion overlapping the construction area. Root pruning shall by conducted by or under direct supervision of a certified arborist.

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TABLE S-2 (continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact	Significance Determination	Mitigation Measure
Biological Resources (cont.)		
Impact 3.D-6 (cont.)		• If feasible, root pruning along the outside edge of a trench or other excavation shall be conducted prior to construction utilizing a combination of small equipment (i.e. trencher, small backhoe, cut-off saw) and hand tools. This "pre-pruning" gives the trees a chance to adapt to root loss prior to construction and develop new feeder roots that aid in water absorption. • All tools used for pruning of tree roots or limbs shall be kept sharp and regularly disinfected to discourage the spread of plant pathogens.
Impact 5.D: Cumulative loss of sensitive biological resources during construction and operations.	LSM	**Mitigation Measure 3.D-1a: *Nesting Bird Protection Measures.*** **Mitigation Measure 3.D-1b: *Protective Measures for Bats.*** **Mitigation Measure 3.D-6: *Tree Protection Measures***
Fisheries Resources		
Impact 3.E-1: Construction and operation of the Project would have a substantial effect on special-status native fish and their aquatic habitat in Almaden Lake and Alamitos Creek	LSM	**Mitigation Measure 3.E-1: *Native Fish Capture and Relocation.*** The District and/or contractor shall implement a fish relocation plan consistent with the following conditions: • Before fish rescues are attempted resource agency authorization shall be obtained • Upon arrival at the site, qualified biologists shall determine the extent of the dryback and if there shall be any immediate or foreseeable impacts to fish and wildlife. This includes a reconnaissance survey of the dryback zone to establish an operational response. • Before dewatering can begin, the following fish relocation elements shall be determined: – *Staging Area*: Identify staging areas in the dryback zone. Sites should be selected on the basis of proximity and access to the dryback zone and safe operation of the equipment. – *Relocation Sites*: Priority shall be given to close proximity to the dryback zone within the same stream; if it is determined by a qualified on-site biologist that no suitable site within the stream is available, then "second choice" locations within the watershed shall be selected. In all cases, the closest site that is likely to result in a successful rescue shall be used. – *Transportation Routes*: Transport routes for rescued fish species shall be determined in advance. – *Downstream vs. Upstream*: Species rescued shall be transported downstream if possible and upstream only for short distances if downstream sites are not feasible. – *Disease Consideration*: Fish shall not be moved upstream over substantial barriers or long distances upstream to guard against disease transmission. • *Salmonids*: If salmonids are encountered during relocation, they should be moved upstream to a location of perennial running water or the best available habitat determined by a qualified biologist. Collection and transport methods shall be determined per site conditions. Methods shall also be selected to maximize efficiency of collection effort while minimizing handling and transport time and stress. Creek water from the site shall be used in all containers. Local transport of fish may be executed by various methods including: – *Net transfer*: Appropriate for short distances where rapid transfer is possible. – *Live car*: Appropriate for temporary holding in stream and short distances where rapid transfer is required. – *Bucket*: Appropriate for temporary holding and transport over short-medium distances. Holding time should be minimized if possible or supplemental aeration supplied.

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TABLE S-2 (continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact	Significance Determination	Mitigation Measure
Fisheries Resources (cont.)		
Impact 3.E-1 (cont.)		– *Aerated cooler*: Appropriate for temporary holding and transport of long distances. Temperature shall be maintained similar to source creek water, and if necessary fish shall be sorted by size to reduce risk of predation. • Prioritization of species and collection/relocation sites to be prioritized as follows: – Endangered species – Threatened species – Species of special concern – Native fishes not under the above categories – Non-native fishes if appropriate • Notify Resource Agencies: Identify a point person to contact at appropriate resource agencies (CDFW, NMFS, and USFWS). At least 24 hours in advance, notify appropriate resource agencies to communicate the details of the fish relocation and to confirm disposition instructions. • Fish relocation shall be conducted in concurrence with the following conditions: – *Setup*: Upon arrival at the site, review the operational sequence and logistics and designate field assignments. Conduct a review of safety and operational methods. – *Live well Operation*: If necessary, set up live wells early in the operation in order to stabilize tank conditions. • Use local "native" water to fill live wells if available and clean • To lessen stress on fish, reduce or manage temperature in live wells to be compatible with the water temperatures in which the fish were encountered. • Start the aeration system prior to placing fish into the live well to ensure that sufficient oxygen is present during the adjustment period. When salmonids are placed in the live well, managed the live well to the extent possible so that the dissolved oxygen concentration shall be greater than 6 mg/l but less than saturation. – *Electrofishing Operation*: Adjust the electrofishing unit settings to the conductivity and temperature of the water. Adjust setting for either varying width (wide to narrow) or varying frequency (high to low) to minimize possible fish injury when these settings elicit proper taxis for fish capture. • Record the settings used and any incidental electrofishing mortalities in the field notebook. If electrofishing mortalities for salmonids and other species listed as threatened or endangered exceed 5% of the total capture, electrofishing activities shall be reevaluated and possibly terminated. • Note fish other than salmonids that are mortalities from electrofishing activities shall be used as an indicator of possible injury or mortality rate to salmonids and other fish. – *General Collection Guidelines*: Execute collection of fish in a manner to minimize handling time and stress, yet maintain the safety of personnel. • Use multiple buckets and/or live cars to reduce crowding during collection and transfer. • Pre-sort fish as needed for transport. • Equip buckets that hold salmonids with portable aerators until subsequent transfer to a live well. – *Transport*: Transport fish to minimize holding time an alternately sequenced in tandem with ongoing collection activities.

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TABLE S-2 (continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact	Significance Determination	Mitigation Measure
Fisheries Resources (cont.)		
Impact 3.E-1 (cont.)		• Continue normal live well operations during transport. – *Records and Data*: Inventory fish and record other pertinent data, including species, numbers of each species, disposition, and other data such as fork length. If conditions preclude a complete inventory, at a minimum, document species present, their disposition, and an estimate of their abundance. • Record information on ambient site conditions (available habitat/water quality), including photo documentation at collection and release sites, as appropriate and other information on collection, handling, and transport. • At completion, conduct an assessment of the fish relocation to identify lessons learned, estimate the number of individual fish and fish species moved and determine the mortality rate. Report shall be forward to the appropriate resource agencies and interested parties.
Impact 3.E-2: Construction and operation of the Project would not interfere substantially with the movement or migration of native fish species, including CCC steelhead DPS.	LS	No mitigation required.
Impact 3.E-3: The Project would not conflict with any local policies or ordinances protecting fisheries resources or with an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan.	LS	No mitigation required.
Impact 5.E: Cumulative loss of special-status native fish species and their aquatic habitat during construction and operations.	LSM	**Mitigation Measure 3.E-1a:** ***Native Fish Capture and Relocation.***
Cultural Resources and Tribal Cultural Resources		
Impact 3.F-1: The Project would cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5, human remains, including those interred outside of formal cemeteries, or a tribal cultural resource as defined in PRC Section 21074.	LSM	**Mitigation Measure 3.F-1a:** ***Preconstruction Training and Cultural Resources Monitoring.*** Prior to construction, a qualified archaeologist shall prepare a cultural resources monitoring plan. The District shall review and approve the plan. The plan shall include a requirement for monitoring of construction activities within 200 feet of archaeological site CA-SCL-132 by a qualified archaeologist and, if reasonably available, a Native American representative. The plan shall include (but not be limited to) the following components: • A training program for all construction and field workers involved in site disturbance that would be completed prior to the commencement of construction activities and that would train site workers in the identification of cultural resources, and actions to be undertaken in the event that cultural resources are discovered; • The identification of person(s) responsible for conducting monitoring activities, including Native American monitors; • The identification of person(s) responsible for overseeing and directing the monitors; • Monitoring protocols and procedures, including the ability of the monitor to stop work within 100 feet of the find, and the required format and content of monitoring reports;

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TABLE S-2 (continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact	Significance Determination	Mitigation Measure
Cultural Resources (cont.)		
Impact 3.F-1 (cont.)		• The schedule for submittal of monitoring reports and identification of person(s) responsible for review and approval of monitoring reports; • A protocol for notifications in the event cultural resources are encountered, as well as methods of dealing with the encountered resources (e.g., collection, identification, curation); • Methods to ensure the security of cultural resources sites; and • A protocol for notifying local authorities (i.e. Sheriff, Police) should site looting and other illegal activities occur during construction. During the course of the construction monitoring, the archaeologist may adjust the frequency, from continuous to intermittent, of the monitoring based on the conditions and professional judgment regarding the potential to impact resources. **Mitigation Measure 3.F-1b:** ***Accidental Discovery of Archaeological Artifacts, Tribal Cultural Resources, or Burial Remains.*** If historical or unique archaeological artifacts (including potential tribal resources) are accidentally discovered during construction, the District shall restrict work in affected areas until proper protocols are met. Work at the location of the find will halt immediately within 30 feet of the find. A "no work" zone shall be established utilizing appropriate flagging to delineate the boundary of this zone. A Consulting Archaeologist will visit the discovery site as soon as practicable for identification and evaluation pursuant to Section 21083.2 of the Public Resources Code and Section 15126.4 of the California Code of Regulations. If the archaeologist determines that the artifact is not significant, construction may resume. If the archaeologist determines that the artifact is significant, the archaeologist will determine if the artifact can be avoided and, if so, will detail avoidance procedures. If the artifact cannot be avoided, the archaeologist will develop within 48 hours an Action Plan which will include provisions to minimize impacts and, if required, a Data Recovery Plan for recovery of artifacts in accordance with Public Resources Code Section 21083.2 and Section 15126.4 of the CEQA Guidelines. Impacts to tribal cultural resources shall be assessed in consultation with culturally-affiliated Native American tribes. If burial finds are accidentally discovered during construction, work in affected areas will be restricted or stopped until proper protocols are met. Upon discovering any burial site as evidenced by human skeletal remains, the County Coroner will be immediately notified and the field crew supervisor shall take immediate steps to secure and protect such remains from vandalism during periods when work crews are absent. No further excavation or disturbance within 30 feet of the site or any nearby area reasonably suspected to overlie adjacent remains may be made except as authorized by the County Coroner, California Native American Heritage Commission, and/or the County Coordinator of Indian Affairs.
Impact 5.F: Cumulative increase in impacts on archaeological, paleontological, historical resources, and tribal cultural resources.	LSM	**Mitigation Measure 3.F-1a:** ***Preconstruction Training and Cultural Resource Monitoring.*** **Mitigation Measure 3.F-1b:** ***Accidental Discovery of Archaeological Artifacts or Burial Remains.***
Energy		
Impact 3.G-1: The Project would result in wasteful, inefficient, or unnecessary consumption of energy resources during Project construction or operation.	LSM	**Mitigation Measure 3.C-1b (see Section 3.C, Air Quality, Impact 3.C-2).**
Impact 5.G: Cumulative environmental impacts due to wasteful, inefficient, or unnecessary consumption of energy resources.	LSM	**Mitigation Measure 3.C-1b:** ***BAAQMD Basic Construction Mitigation Measures*** **(see Section 3.C, Air Quality, Impact 3.C-2).**

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TABLE S-2 (continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact	Significance Determination	Mitigation Measure
Geology and Soils		
Impact 3.H-1: The Project would not directly or indirectly cause potential substantial adverse effects involving strong seismic ground shaking.	LS	No mitigation required.
Impact 3.H-2: The Project would not result in substantial soil erosion or loss of the topsoil.	LS	No mitigation required.
Impact 3.H-3: The Project is located on a geologic unit or soil that could become unstable, but would not cause landsliding, lateral spreading, subsidence, liquefaction, or collapse.	LS	No mitigation required.
Impact 3.H-4: The Project would not expose people or structures to substantial direct or indirect risks to life or property related to expansive or corrosive soils, as defined by the Uniform Building Code.	LS	No mitigation required.
Impact 3.H-5: The Project would not directly or indirectly destroy a unique paleontological resource or site or unique geological feature.	LS	No mitigation required.
Impact 5.H: Cumulative exposure of people or structures to geologic and seismic hazards.	LS	No mitigation required.
Greenhouse Gas Emissions		
Impact 3.I-1: The Project would not generate GHG emissions that would be above the District's threshold of significance for GHG emissions.	LS	No mitigation required.
Impact 3.I-2: The Project would not conflict with applicable plans, policies, and regulations adopted for the purposes of reducing GHG emissions.	LS	No mitigation required.
Impact 5.I: Cumulative effects related to greenhouse gas emissions.	LS	No mitigation required.

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TABLE S-2 (continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact	Significance Determination	Mitigation Measure
Hazards and Hazardous Materials		
Impact 3.J-1: The Project would not create a significant hazard to the public or the environment through the routine transport, use, disposal, or accidental release of hazardous materials during the use of equipment.	LS	No mitigation required.
Impact 3.J-2: The Project would not create a significant hazard to the public or the environment through the routine transport, use, disposal, or accidental release of contaminated soil.	LS	No mitigation required.
Impact 3.J-3: The Project would not create a significant hazard to the public or the environment through the routine transport, use, disposal, or accidental release of pesticides during operations.	LS	No mitigation required.
Impact 3.J-4: The Project is located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 or other listings, but would not create a significant hazard to the public or the environment.	LS	No mitigation required.
Impact 3.J-5: The Project would not impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan.	LS	No mitigation required.
Impact 5.J: Cumulative effects related to hazardous conditions and exposure to or release of hazardous materials.	LS	No mitigation required.

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TABLE S-2 (continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact	Significance Determination	Mitigation Measure
Hydrology and Water Quality		
Impact 3.K-1: The Project would violate water quality standards or waste discharge requirements, conflict with or obstruct implementation of the Basin Plan, or otherwise substantially degrade surface or groundwater quality.	LSM	**Mitigation Measure 3.K-1: *Monitor and Manage the Quality of Lake Discharges to Creek.*** The District and/or its contractor(s) shall monitor the quality of water discharged during drawdown of Almaden Lake during Project construction. Initially, water quality shall be tested for turbidity daily during discharge, or as required under the RWQCB Section 401 Water Quality Certification and/or Waste Discharge Permit obtained for the Project. When the lake reaches 10% of its capacity volume, the District shall monitor water quality at least hourly until direct discharge to Alamitos Creek ceases. Monitoring shall be completed in the field using portable equipment. If turbidity concentrations in excess of 500 NTU are detected or as indicated in the Permit, waters shall be treated by filtration (filter or media filtration), settlement, or other non-chemical means to remove sediment prior to discharge. Removed sediment shall be tested for mercury concentration, and disposed of in accordance with applicable requirements / regulations. If a dewatering permit from the RWQCB is required, water quality monitoring requirements identified here may overlap with permit requirements. In such a case, monitoring requirements under this mitigation measure could be reduced only to avoid duplicative sampling and analysis.
Impact 3.K-2: The Project would not substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the Project may impede sustainable groundwater management of the basin or conflict with the Groundwater Management Plan.	LS	No mitigation required.
Impact 3.K-3: The Project would 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 could: (i) Result in substantial erosion or siltation 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 planned stormwater drainage systems or provide substantial additional sources of polluted runoff (iv) Impede or redirect flood flows	LSM	**Mitigation Measure 3.K-3: *Final Siting of Sheet Pile System.*** Prior to the initiation of construction, the District and/or its contractors shall determine the final siting of the temporary sheet pile system based on a hydrologic assessment during design. The design shall site all proposed sheet piles needed for Project construction to ensure that sufficient capacity would be available in the temporary creek system to convey up to a 100-year storm event (i.e., approximately 8,250 cfs).

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TABLE S-2 (continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact	Significance Determination	Mitigation Measure
Hydrology and Water Quality (cont.)		
Impact 5.K: Cumulative impacts related to the degradation of surface or groundwater quality, conflict with the Basin Plan, depletion of groundwater resources, alteration of drainage patterns or addition of impervious surfaces in a manner which would cause erosion or siltation, substantially increase runoff, cause flooding, exceed stormwater systems, or impede or redirect flood flows.	LS	No mitigation required.
Noise		
Impact 3.L-1: The Project would generate 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.	LSM	**Mitigation Measure 3.L-1a: *Construction Noise Logistics Plan.*** The District and/or its contractors shall develop and adhere to a Construction Noise Logistics Plan, in accordance with General Plan Policy EC-1.7. The Plan will specify hours of construction, noise and vibration minimization measures (e.g., use of exhaust mufflers, use of and hydraulically or electrically powered equipment, and use of noise shields, blankets, and/or enclosures), provide for / require posting and notification of residences within 500 feet of the construction site of construction schedules, and designate a noise disturbance coordinator to respond to neighborhood complaints during construction. The noise disturbance coordinator shall ensure that the Plan is implemented, and shall be available to respond to complaints during all construction work hours. All construction activities conducted within 500 feet of a residence shall be completed between the hours of 7:00 a.m. and 7:00 p.m., on weekdays; or Saturdays if permitted by the City. The Plan shall include a provision restricting all Project-related construction traffic to the site via the Guadalupe River Trail north of Almaden Lake Village to worker vehicles only (i.e., no haul truck access) and a provision restricting hourly truck trips along Winfield Boulevard, south of Coleman Road, to no more than 70 trips per hour. **Mitigation Measure 3.L-1b: *Install a Fully Enclosed Pump Station.*** The District and/or its construction contractors shall be required to fully enclose the pumps at the proposed pump station, to reduce operational noise levels. The enclosure shall fully cover all pumps, and shall be sufficient to reduce noise levels to 55 dB or lower at each residence within 500 feet of the Project site.
Impact 3.L-2: Project-related construction would not generate excessive vibration and groundborne noise exposure in the Project vicinity.	LS	No mitigation required.
Impact 5.L: Cumulative increases in noise and vibration in the Project area.	LSM	**Mitigation Measure 3.L-1a: *Construction Noise Logistics Plan.*** **Mitigation Measure 3.L-1b: *Install a Fully Enclosed Pump Station.***

LS = less than significant; LSM = Less than Significant with Mitigation; SU = significant and unavoidable.

TABLE S-2 (continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact	Significance Determination	Mitigation Measure
Public Services		
Impact 3.M-1: Development of the proposed Project could result in an increase in calls for fire protection, police services and emergency medical response services, but would not require new or physically altered fire or police facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable performance objectives.	LS	No mitigation required.
Impact 3.M-2: Development of the proposed Project could result in an increase in the use of existing neighborhood and regional parks and recreation centers, but not to the extent that substantial physical deterioration of the facilities would occur or be accelerated, nor would it cause the necessity for new or expanded facilities.	LS	No mitigation required.
Impact 5.M: Cumulative effects on public services.	LS	No mitigation required.
Recreation		
Impact 3.N-1: The Project would not result in the loss of recreational opportunities that would 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.	LS	No mitigation required.
Impact 3.N-2: The Project would not include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment	LS	No mitigation required.
Impact 5.N: Cumulative effects on recreational resources during construction.	LS	No mitigation required.

LS = less than significant; LSM = Less than Significant with Mitigation; SU = significant and unavoidable.

TABLE S-2 (continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact	Significance Determination	Mitigation Measure
Transportation		
Impact 3.O-1: The Project would increase traffic volumes on area roadways, but would not conflict with a program plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities.	LS	No mitigation required.
Impact 3.O-2: The Project would not conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b)	LS	No mitigation required.
Impact 3.O-3: The Project would not substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment).	LS	No mitigation required.
Impact 3.O-4: The Project would not result in inadequate emergency access.	LS	No mitigation required.
Impact 5.O: Cumulative traffic increases on local and regional roads.	LS	No mitigation required.
Utilities and Service Systems		
Impact 3.P-1: The Project would not require or result in the relocation or construction of new or expanded water treatment or storm water drainage, electrical power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects; the Project would not have insufficient water supplies available to serve the Project and reasonably foreseeable future development during normal, dry and multiple dry years.	LS	No mitigation required.
Impact 3.P-2: The Project would not 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.	LS	No mitigation required.

LS = less than significant; LSM = Less than Significant with Mitigation; SU = significant and unavoidable.

TABLE S-2 (continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact	Significance Determination	Mitigation Measure
Utilities and Service Systems (cont.)		
Impact 3.P-3: The Project would not be out of compliance with federal, state, and local management and reduction statutes and regulations related to solid waste.	LS	No mitigation required.
Impact 5.P: Cumulative impacts related to disruption of utility service or relocation of utilities.	LS	No mitigation required.

LS = less than significant; LSM = Less than Significant with Mitigation; SU = significant and unavoidable.

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CHAPTER 1
Introduction

The Santa Clara Valley Water District (District) is proposing the Almaden Lake Improvement Project (Project) at Almaden Lake Park (Park) in the City of San José (City). The Project would separate Alamitos Creek from Almaden Lake (lake) within the footprint of the lake, to reduce water temperatures downstream of the lake, improve physical habitat for native fish and passage for anadromous fish and reduce fish predation, while improving water quality and minimizing impacts to existing recreational features in the Park. The proposed improvements would include modification of the existing contour of Almaden Lake, with restoration of a creek channel within the existing lake area. Other measures would protect the existing lake area to support habitat and recreational beneficial uses, while promoting water quality improvement objectives laid out by the San Francisco Bay Regional Water Quality Control Board (RWQCB) in its 2008 Basin Plan Amendment.

Developed as a partnership between the City and the District in the late 1970s, Almaden Lake Park is a 65-acre recreational facility that includes the 32-acre Almaden Lake, and offers to the public miles of hiking trails, biking, picnic areas, volleyball, bocce ball courts, pedal boating, and other recreational activities. However, due to historic mining activities upstream of Almaden Lake and the lake's deep bathymetry, mercury-laden sediment has accumulated at the bottom of the lake. Driven by anoxic conditions at the lake bottom, microbial methylation of mercury has resulted in high levels of methylmercury in water and fish. The lake is also subject to other notable water quality issues, including high temperature, high bacteriological counts, potentially toxic algae blooms, and low dissolved oxygen. By implementing the proposed changes, the District aims to reduce methylmercury generation and improve overall water quality. In this way, the Project would promote the ability of the District to improve conditions in the lake for fish, while minimizing impacts on existing recreational features.

On November 6, 2012, voters approved the Safe, Clean Water and Natural Flood Protection Program as a countywide special parcel tax for 15 years with a sunset date of June 30, 2028. The Safe, Clean Water and Natural Flood Protection Program addresses the needs, values, and priorities identified by Santa Clara County stakeholders, which includes funding Priority D to Restore Wildlife Habitat and Provide Open Space. Under this Priority is Project D4 – Fish Habitat and Passage Improvement, which includes two Key Performance Indicators (KPIs) related to creek/lake separation. KPI #1 requires that the District complete planning and design for two creek/lake separation projects, while KPI #2 requires that the District construct one creek/lake separation project in partnership with local agencies. The District Board of Directors has not yet determined which creek/lake separation project will be constructed to meet the KPIs for the Priority 4D project. The requirements of the Safe, Clean Water and Natural Flood

Protection Program relevant to this Project are further described in Section 2.D.1, Project Components. The Almaden Lake Improvement Project, as proposed, is intended to help restore and maintain healthy steelhead trout populations by improving fish passage and habitat.

In addition, the Almaden Lake Improvement Project, as proposed, would also serve as offsite mitigation for another District project, specifically the Upper Berryessa Flood Risk Management Project (Upper Berryessa Project) which the District approved in February 2016. In April 2017, the San Francisco Bay Regional Water Quality Control Board (Regional Board) adopted Order No. R2-2017-0015 (Order) issuing waste discharge requirements and water quality certification to the District and the U.S. Army Corps of Engineers for construction and operation of the Upper Berryessa Project. The Order requires that the District propose and construct an offsite mitigation project to enhance 15,000 linear feet or 15 acres of creek waters or the equivalent for the Upper Berryessa Project's impacts on jurisdictional waters. In August 2018, the Regional Board staff issued a technical memorandum[1] concluding that the Almaden Lake Project would provide adequate enhancement to water quality and beneficial uses in jurisdictional waters to more than compensate for impacts from both the Almaden Lake Project and the Upper Berryessa Project.

1.A Purpose of the EIR

The District is the lead agency responsible for California Environmental Quality Act (CEQA) environmental review of projects undertaken or sponsored by the District. CEQA requires the preparation of an Environmental Impact Report (EIR) when a project could significantly affect the physical environment. The District determined that the Project could potentially cause significant environmental impacts, and that preparation of an EIR was therefore required for the Project to comply with CEQA.

The District has prepared this EIR to provide the District's Board of Directors (Board), the public, and responsible and trustee agencies reviewing this Project, with information about the potential physical effects, both beneficial and adverse, on the local and regional environment associated with implementation of the Project. This EIR was prepared in compliance with CEQA (California Public Resources Code, Sections 21000 et seq.), and the CEQA Guidelines (Code of Regulations Title 14, Chapter 3, Sections 15000 et seq.).

This EIR describes the Project under consideration by the District. The document characterizes the Project setting, discloses the range of potential environmental impacts of the Project, and identifies mitigation measures where those impacts would be significant. The EIR also addresses cumulative adverse impacts to which the proposed Project could make a substantial contribution. Also, as required under CEQA, it describes and evaluates potentially feasible alternatives to the Project that could avoid or reduce significant impacts while still meeting most of the Project's objectives.

1 Memo from SFRWQCB to SCVWD, August 8, 2018, Proposed Use of Almaden Lake Project to Comply with the Order for the Upper Berryessa Creek Flood Risk Management Project.

1.B EIR Process

1.B.1 Notice of Preparation and Scoping

In accordance with Section 15082 of the CEQA Guidelines, the District, as the CEQA lead agency, prepared a Notice of Preparation (NOP) for this EIR. The NOP contained a description of the Project, a discussion of possible alternatives, a map of the Project area, and a summary of the probable environmental effects of the Project to be addressed in the EIR, and is included in this EIR as **Appendix A**. On March 27, 2014, the NOP was mailed to interested parties, including individuals; local, state, federal agencies, and posted by the County Clerk. The 30-day scoping period for the Project remained open through April 26, 2014. On April 9, 2014, the District held a Project scoping and update meeting at Castillero Middle School. An invitation to the meeting was mailed to approximately 3,000 area residents, and was posted on the District website, with an announcement posted on the District's blog. The NOP was also sent, via certified mail, to all applicable resource agencies required under CEQA.

The District received four comment letters from local organizations, and state and federal agencies during the comment period, as well as 30 questions from attendees during the public meeting on April 9, 2014. The NOP, comment letters, and questions (with District responses) from the public meeting are included in Appendix A.

1.B.2 Draft EIR

This Draft EIR (DEIR) is available to local, state, and federal agencies, and to interested organizations and individuals, who may want to review and comment on the analysis provided, for a 45-day period identified on the notice that is inside the front cover of the document. Notice of this DEIR has also been sent directly to every agency, person, or organization that commented on the NOP. During the public comment period, written comments on the adequacy of the DEIR may be submitted to:

Michael Martin
Santa Clara Valley Water District
5750 Almaden Expressway
San José, CA 95118

Comments may also be submitted electronically via email to Michael Martin at MichaelMartin@valleywater.org. During this 45-day review period, copies of the DEIR will be available for public review at the following locations:

- Santa Clara Valley Water District Office, located at 5750 Almaden Expressway, San José
- Public libraries
  - Almaden Branch Library, 6445 Camden Avenue, San José
  - Vineland Branch Library, 1450 Blossom Hill Road, San José
  - Pearl Avenue Branch Library, 4270 Pearl Avenue, San José
  - Edenvale Branch Library, 101 Branham Lane East, San José

- Cambrian Branch Library, 1780 Hillsdale Avenue, San José
- Santa Teresa Branch Library, 290 International Circle, San José

An electronic copy of the DEIR can also be viewed and downloaded at https://www.valleywater.org/project-updates/public-review-documents. The District will also conduct a public hearing to receive oral comments on the adequacy of the analysis included in the DEIR. The meeting will be held on:

Date: Wednesday, January 8, 2020
Time: 6:00 p.m.
Location: Santa Clara Valley Water District Headquarters, Board Room
5700 Almaden Expressway
San José, CA 95118

1.B.3 Final EIR

All written comments received on the adequacy of this DEIR during the public review period will be addressed in a "response-to-comments" document which, together with this DEIR, will constitute the Final EIR (FEIR). The response-to-comments document will also present any changes to the DEIR resulting from public and agency input and District staff initiated changes.

Prior to any decision to approve, revise, or reject the Project, the Board will review the FEIR and consider certifying the document at a regularly-scheduled board meeting. Upon EIR certification, the District may proceed with Project approval actions. Approval of the Project would include written findings for each significant adverse environmental effect identified in the EIR (CEQA Guidelines § 15091). At the time that CEQA findings are adopted, the District would also adopt a mitigation monitoring and reporting program (MMRP) for adopted mitigation measures (further discussed below).

1.B.4 Mitigation, Monitoring, and Reporting

Although CEQA Guidelines do not require that the specific reporting or monitoring program be included in the EIR, California law requires lead agencies to adopt a MMRP for those mitigation measures that are conditions of project approval and that are necessary to reduce or avoid significant effects on the environment. All adopted measures will be included in an MMRP to ensure CEQA compliance during project implementation (CEQA Guidelines § 15097(a)).

1.C Organization of the Draft EIR

Prior to this chapter, this DEIR contains a summary section, which provides a concise overview of the document. The Executive Summary allows the reader to review a summary of the analysis of potentially significant effects, proposed mitigation measures, residual environmental impacts after mitigation, and alternatives to the Project that reduce or avoid effects on the environment. The Executive Summary culminates with the Summary of Environmental Impacts and Mitigation Measures. This table lists each identified environmental impact, associated mitigation measures, and the level of significance following mitigation. Those individuals who wish to read them in greater detail are directed to the main body of the document.

Following this chapter, this DEIR has been organized as follows:

Chapter 2, Project Description. This chapter provides a detailed description of the Project, including a description of the Project vicinity, existing facilities, construction information, and anticipated maintenance requirements. It includes a discussion of the existing facilities and operations, project needs, and project objectives as well as a brief overview of the District's process to consider whether to approve the Project.

Chapter 3, Environmental Setting, Impacts, and Mitigation Measures. Each environmental topic is discussed in a separate section within this chapter. Each section contains a discussion of the setting (existing environmental and regulatory setting), and the environmental impacts that could result from the Project; this analysis includes specific District BMPs incorporated in the Project that would serve to avoid or reduce impacts. Each section also presents feasible mitigation measures for significant adverse impacts. The criteria used to assess the significance of adverse environmental effects are identified, and the significance of the impact both prior to and following mitigation is reported.

Chapter 4, Alternatives. This chapter evaluates a range of alternatives to the Project, including the No Project Alternative, which is required by CEQA.

Chapter 5, Cumulative Impacts. This chapter describes the impacts of the Project in combination with impacts of past projects, current, and reasonably foreseeable probable future projects that could potentially result in impacts similar to those resulting from construction and/or operation of the Project.

Chapter 6, Other CEQA Issues. This chapter describes the Project's growth-inducement potential, and summarizes the significant and unavoidable effects of the Project and the significant and irreversible environmental changes of the Project.

Chapter 7, Draft EIR Preparers. This chapter lists persons, and affiliations of those persons who prepared this EIR.

1.D References

San Francisco Bay Regional Water Quality Control Board (RWQCB), 2008. Resolution R2-2008-0089. Amending the Water Quality Control Plan for the San Francisco Bay Region to Establish New Water Quality Objectives, Total Maximum Daily Loads, and an Implementation Plan for Mercury in the Guadalupe River Watershed. Adopted October 14, 2008. Available: http://www.waterboards.ca.gov/rwqcb2/board_decisions/adopted_orders/2008/R2-2008-0089.pdf.

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CHAPTER 2
Project Description

This chapter presents an overview of the Project; its needs and objectives; and construction and maintenance information and methods.

2.A Introduction

The Almaden Lake Improvement Project (Project) is in the City of San José's (City) Almaden Lake Park (Park). As discussed in detail in Section 2.C, Existing Facilities and Operations, Needs and Objectives, the 32-acre Almaden Lake (located entirely within Almaden Lake Park) formed when a quarry levee breached. The loss of the integrity of the Alamitos Creek channel and commingling of creek water with lake water has created adverse conditions for the anadromous fish population. Further, mercury-laden sediment from historic upstream mining activities continues to be transported downstream in Alamitos Creek and is deposited in Almaden Lake. Seasonal lake conditions contribute to the conversion of elemental mercury to methylmercury as well as other negative water quality conditions. The Project would address these issues by reestablishing the Alamitos Creek channel, separating the creek from Almaden Lake (lake) in order to improve anadromous fish access to spawning and rearing habitat within the upper portions of the Guadalupe River Watershed, and reducing methylmercury levels in the lake. Specifically, the Project would include the following improvements:

- Separating Alamitos Creek from Almaden Lake by constructing a levee;
- Re-contouring the remaining lake bottom and capping it with clean fill;
- Expanding the Park area into a small portion of the existing lake at the beach area;
- Stabilizing the existing island and constructing a new additional island;
- Establishing appropriate native vegetation along the banks and floodplain of the restored Alamitos Creek channel, new lake edge, and the islands;
- Connecting the lake via pipeline to an imported water supply from the nearby Almaden Valley Pipeline;
- Adding a pipeline connection between the lake and the Los Alamitos Percolation Pond (Pond), which is a groundwater recharge pond operated by the Santa Clara Valley Water District (District); and
- Continuing to implement measures to manage and reduce future methylmercury production, such as solar-powered circulators.

2.B Project Location

Almaden Lake Park is a 65-acre, public access park located in Santa Clara County, within the southern portion of the City of San José (**Figure 2-1**). Almaden Lake and Alamitos Creek are within the Guadalupe River Watershed and are tributaries of the Guadalupe River, which begins at the confluence of Guadalupe Creek and Alamitos Creek.

Almaden Lake Park is bounded by Coleman Road to the north, Almaden Expressway to the west, Winfield Boulevard to the east, and a pedestrian bridge that spans Alamitos Creek, Los Alamitos Creek Trail and commercial parcels to the south. The area surrounding Almaden Lake Park includes moderate-density residential uses (Cal Engineering & Geology, 2015).

The Project area includes the entirety of Almaden Lake and proposed pipeline corridors connecting Almaden Lake to the Almaden Valley Pipeline (upstream) and Los Alamitos Percolation Pond (downstream). The Project includes temporary construction staging areas at the southwestern portion of Almaden Lake Park, the currently vacant property owned by the City of San José also known as the Sycamore Terrace property (located at the northeast corner of Almaden Expressway and Coleman Road), and the District's Winfield Warehouse (located on Winfield Boulevard north of Coleman Road).

2.C Existing Facilities and Operations, Needs and Objectives

2.C.1 Existing Facilities and Operations

Almaden Lake

Almaden Lake was created by in- and off-stream gravel quarry operations, circa late 1940's to 1960. The off-stream quarry operation was located along the east side of Alamitos Creek and was comprised of two main large pits. After the gravel quarry operations ceased, heavy storm events eroded the levee that separated the creek from the quarry, resulting in discharge of creek waters into the former quarry area, creating Almaden Lake. The lake's bottom is unnaturally varied, and in places deep due to the remnant pits.[1] Remnant dikes that separated individual pits during quarry operations remain, but are now submerged below the water surface. The existing water level of the lake is at an elevation of approximately 188 to 190 feet above mean sea level (msl).

1 Almaden Lake depths range between 2 feet and up to 47 feet (SCVWD, 2013).

SOURCE: USDA, 2016; Santa Clara Valley Water District

Almaden Lake Improvement Project . 130679

Figure 2-1
Project Site

Almaden Lake Park

Almaden Lake Park was developed as a partnership between the City and the District in the late 1970s. District and City responsibilities at Almaden Lake Park are dictated by a joint use agreement. The District is responsible for flood protection, water resource management, and stream stewardship of the lake. The City is responsible for managing recreational uses of the Park, including swimming, fishing, non-motorized boating, picnicking, non-motorized bicycling, and hiking activities. Due to water quality concerns, the City has closed Almaden Lake to swimming since August 2010. The City is also responsible for certain operations and maintenance activities such as graffiti abatement, patrolling, and repairing damage to District facilities resulting from public use.

Almaden Valley Pipeline

The Almaden Valley Pipeline water is a raw (untreated) water pipeline operated by the District. In addition to imported water, the Almaden Valley Pipeline can convey water captured at Anderson Reservoir and Calero Reservoir for water supply uses.

Los Alamitos Percolation Pond

The Los Alamitos Percolation Pond is located approximately 1,000 feet north of Almaden Lake, west of the Guadalupe River. The Los Alamitos Percolation Pond is a groundwater recharge Pond that would take water from Almaden Lake to enhance circulation is the lake after implementation of the Project. Currently, water from Guadalupe River is diverted to Los Alamitos Percolation Pond for recharge of the groundwater basin, or water can also be delivered from a 24-inch diameter pipeline under Almaden Parkway from the Los Capitancillos Percolation Ponds (located west of Almaden Expressway). Similar to the Los Alamitos Percolation Pond, the Los Capitancillos Percolation Ponds are groundwater recharge ponds owned and operated by the District. These sources would continue to be utilized after implementation of the Project.

Water Rights

Under existing operations, the Los Alamitos Percolation Pond can be filled when the Alamitos Flashboard Dam[2] is installed at the Alamitos Drop Structure. The Los Alamitos Percolation Pond and Guadalupe Percolation Ponds (which are fed by the Los Alamitos Percolation Pond) have a model recharge capacity of 22 acre feet per day, or about 8,000 acre feet per year (AFY). The water diverted to the percolation ponds can come from various water rights owned by the District (3,302 AFY from the Guadalupe River; 2,500 AFY from Almaden Reservoir; 6,000 AFY from the Almaden-Calero Canal; 3,500 AFY from Calero Reservoir; and 3,500 AFY from Guadalupe Reservoir), or from imported water that

2 While not part of the Project, the seasonal Alamitos Flashboard Dam is located downstream of Almaden Lake and is part of the Guadalupe Water Supply Management System, which develops local water supplies from the District's water rights. The flashboard dam is typically installed in April and removed in December to allow flow conveyance during winter storm events. No changes to flashboard operation would occur under the proposed Project.

can be released at Calero Reservoir, Alamitos Creek, or Guadalupe Creek to flow downstream to the Alamitos Flashboard Dam.

Almaden Lake Vegetation Management

Maintenance requirements for the existing vegetation along the lake's banks are minimal, except for some vegetation management activities on the island such as hand weeding and herbicide application on invasive vegetation. In September 2009, the District began a four-year project to remove giant reed (*Arundo donax*) from the island. This non-native plant had previously covered nearly 100 percent of the island. Following removal, the island was planted with native riparian trees to create habitat for several species of roosting birds that populate the island. Although the riparian vegetation is now self-sufficient, the island's banks are unstable and prone to erosion, and retreatment of giant reed is needed periodically.

2.C.2 Project Needs

Mercury in Almaden Lake

The New Almaden Quicksilver Mine is in the upper Guadalupe River Watershed and operated from 1850 to 1970. The New Almaden Quicksilver Mine contributed to the release of approximately 6,500 tons of mercury into local creeks and rivers during its years of operation (SCVWD, 2015a).

Since the formation of Almaden Lake, mercury-laden sediment originating from the mine has been depositing into the lake. This has resulted in the accumulation of mercury-laden sediments on the lake bottom, as upstream sediments settle out of the water column in the lake typically during high flow events. Bottom waters and sediments in the lake frequently experience low oxygen or anoxic conditions due to the lake's depth and seasonal algal blooms caused by high nutrient and organic matter loadings. Under such conditions, certain microbes readily transform elemental mercury into methylmercury, a strong neurotoxin that accumulates in the tissues of organisms, which has bioaccumulated in Almaden Lake's fish (SCVWD, 2015a).

In October 2008, the RWQCB adopted a Total Maximum Daily Load (TMDL) for mercury in the Guadalupe River watershed, including Almaden Lake, as well as site-specific objectives for mercury in fish tissue (RWQCB, 2008). Prior to the TMDL adoption, the District voluntarily initiated control measures to reduce the methylmercury concentrations in the lake by installing four solar-powered circulators (SolarBees) between 2006 and 2009, which were intended to help alleviate conditions that favor the formation of methylmercury by mixing lake waters, thereby increasing dissolved oxygen in the water column and reducing anoxic conditions. The District continues to operate these SolarBees. Water quality testing results from 2009 to 2017 have shown a reduction in methylmercury concentrations in the lake; however, reductions in methylmercury in fish tissue have not been conclusively observed (SCVWD, 2017b).

The proposed Project is being undertaken to address methylmercury production in the lake and reduce direct input of mercury into the lake, which would promote the water quality objectives laid out by the San Francisco Bay Regional Water Quality Control Board (RWQCB) in the 2008 Basin Plan Amendment (RWQCB, 2008).

Fisheries and Barriers to Anadromous Fish Passage

The Guadalupe Watershed provides habitat for the federally-threatened Central California Coast Steelhead[3] and other anadromous fish (see Section 3.E, Fisheries Resources). Up-migrating adult steelhead must pass through Almaden Lake to reach Alamitos Creek's upstream spawning and rearing habitat. Similarly, juvenile steelhead smolts must pass through the lake when they out-migrate downstream to the ocean (SCVWD, 2015a).

The comingling of Almaden Lake with Alamitos Creek imposes entrainment and predation impacts to steelhead by disrupting its migratory passage through the footprint of the lake. These effects result in non-physical barriers to passage, including conditions that can imperil native fish and degrade aquatic habitat downstream. For example, entrainment in the lake is possible, making it difficult for steelhead and other anadromous fish to find the source stream (i.e., Alamitos Creek/Calero Creeks) at the upstream end of the lake (SCVWD, 2013). When native fish become entrained, they are vulnerable to predation from non-native fish species, thus reducing the success of the species. Due to the unnaturally varied depths within the lake, and the lake's large surface area and long residence time, surface temperatures of the lake are elevated compared to the upstream Alamitos Creek source water. Elevated temperatures create conditions that are not optimal for steelhead and other anadromous fish. These temperature issues extend downstream of the lake into the Guadalupe River, as water released from the lake travels downriver.

Other Water Quality Concerns

In addition to the issues of methylmercury described above, Almaden Lake also carries high concentrations of coliform bacteria and is subject to seasonal blue-green algae blooms. These issues result from the release of fecal matter from waterbirds, combined with lack of water circulation during low flow periods, warm temperatures, and nutrient loading, which together support algae blooms and continued presence of elevated bacteria levels. As a result of poor water quality and City of San José operational constraints (SCVWD, 2013), public use of the lake has been impeded, and Almaden Lake has been closed to swimming since August 2010. Additionally, poor quality water released from the lake contributes to degraded water quality downstream of the lake in the Guadalupe River.

[3] The National Marine Fisheries Service (NMFS) has been refining the listing and habitat status of Central California Coast Steelhead since 1997 (Federal Register. 61:41541-4156).

2.C.3 Project Objectives

The Project purpose is to restore Alamitos Creek's function within the footprint of Almaden Lake Park in order to improve physical habitat for steelhead and other anadromous fish, while improving water quality within the lake footprint, and minimizing impacts to existing recreational features within the Park.

This purpose would be accomplished through the following objectives:

- Separate Alamitos Creek from Almaden Lake.
- Reduce production of methylmercury, and mercury in target fish in Almaden Lake to meet applicable water quality objectives.[4]
- Remove potential lake entrainment of anadromous fish.
- Improve temperature conditions and reduce predation for native fish.
- Minimize impacts to existing recreational features.

Separating Alamitos Creek from Almaden Lake would restore Alamitos Creek's upstream and downstream connectivity within the Guadalupe River Watershed, restoring habitat linkages for native fish and anadromous fish species, and would create a geomorphically stable creek channel that would improve sediment transport and restore natural creek functions. Therefore, the Project would help to restore and maintain healthy fish populations by improving fish habitat and passage in the creek channel.

Leveling the irregular lake bottom and capping existing elemental mercury in the lake bed would assist in addressing Almaden Lake's mercury-related water quality issues. Re-contouring the lake bottom, continuing effective control measures (e.g., operation of SolarBee solar powered circulators) to manage future methylmercury production and bioaccumulation in fish, and utilizing a water source that minimizes the reintroduction of mercury to the lake would promote the ability of the District to meet the water quality objectives laid out by the San Francisco Bay Regional Water Quality Control Board (RWQCB) in the 2008 Basin Plan Amendment (RWQCB, 2008).

2.D Project Description

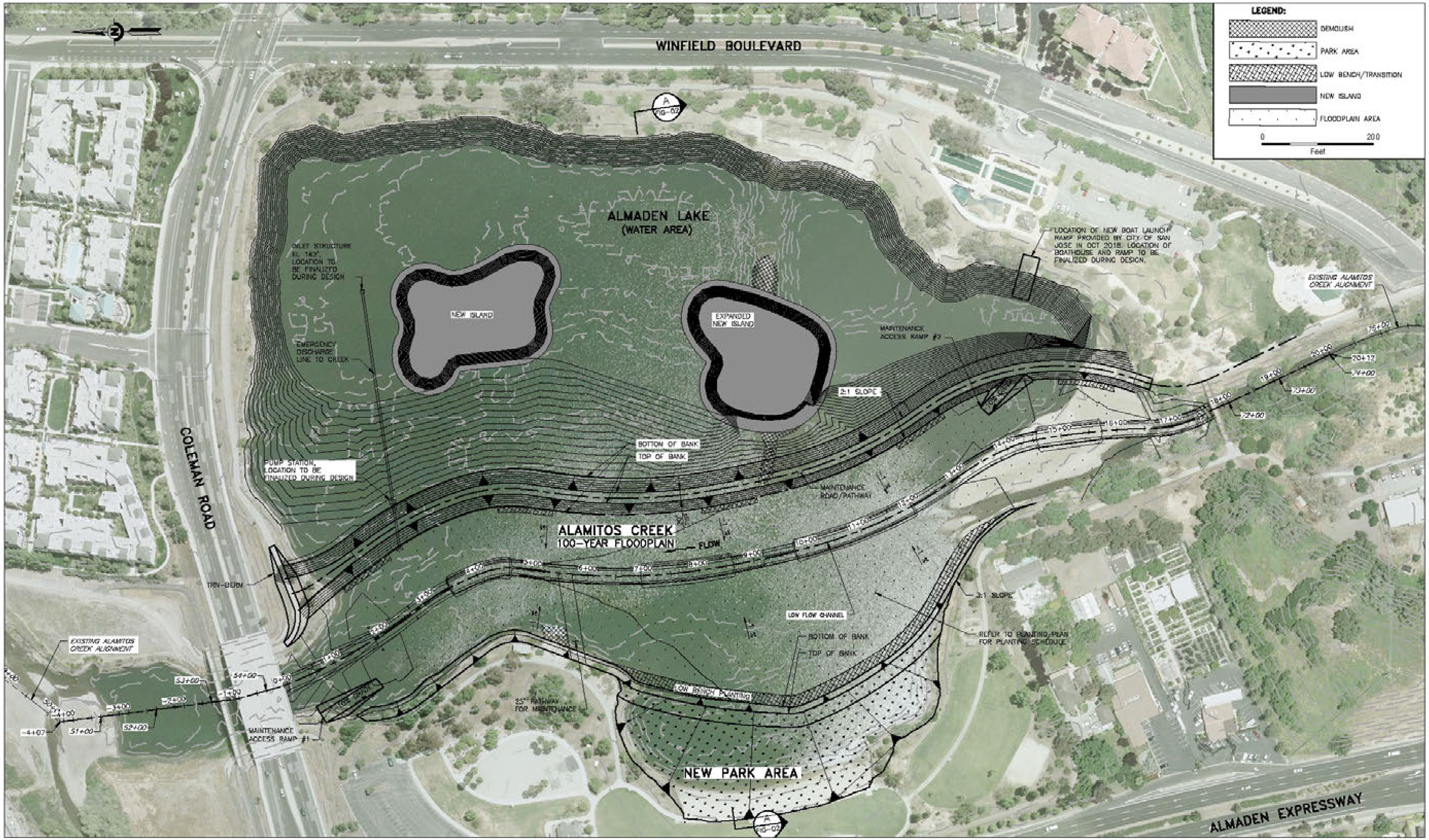
As described in Section 2.A, Introduction, the proposed Project includes separating Alamitos Creek from the lake and restoring its upstream and downstream connectivity, re-contouring the lake bottom and capping it with clean fill, expanding the Park into the existing lake and beach areas, expanding the existing island and constructing a new island, establishing vegetation, and connecting the lake via pipeline to an imported water source. **Table 2-1** below summarizes the Project components. **Figure 2-2** illustrates the proposed Project

[4] Water quality objectives are discussed in Section 3K, Hydrology.

within the Almaden Lake area, which includes a 17-acre lake surface area, and retains the portion of the Park associated with the existing boathouse. **Figure 2-3** displays a cross section of the proposed lake and creek. Each Project component is described in greater detail in the following section.

TABLE 2-1
SUMMARY OF PROJECT COMPONENTS

Project Element	Description
Alamitos Creek Restoration	Separation of Alamitos Creek from the lake area
	Construction of a geomorphically stable, self-sustaining channel for Alamitos Creek
	11 acres of restored creek area
	20-foot wide levee along top with maintenance road and public trail
	Construct two maintenance access ramps into new creek area
Almaden Lake Separation	Separation of the lake area from Alamitos Creek
	17 acres of lake water surface area
	Reshaping of remaining lake bed and capping of mercury-laden sediment with clean clay
	Relocation of the boat launch ramp and boat house
Open Park Area Expansion	Addition of approximately 2 acres of open park area at the existing west beach and lake area
Island Areas Expansion and New	Expansion of existing island to 0.75 acres and construction of new 0.75 acre island
Almaden Lake Source Water Connection	Supplying of source water to the lake to maintain a water level between 188 feet and 190 feet above msl (consistent with existing conditions). Water would be supplied from the Almaden Valley Pipeline, which would provide imported raw water for use in the lake
Almaden Lake Connection to Los Alamitos Percolation Pond	Pumping Almaden Lake water via an outlet structure into a new pipeline connecting to Los Alamitos Percolation Pond for circulation.
Vegetation Installation	Installation of riparian vegetation along both sides of the new levee, west bank of the restored creek, and the islands

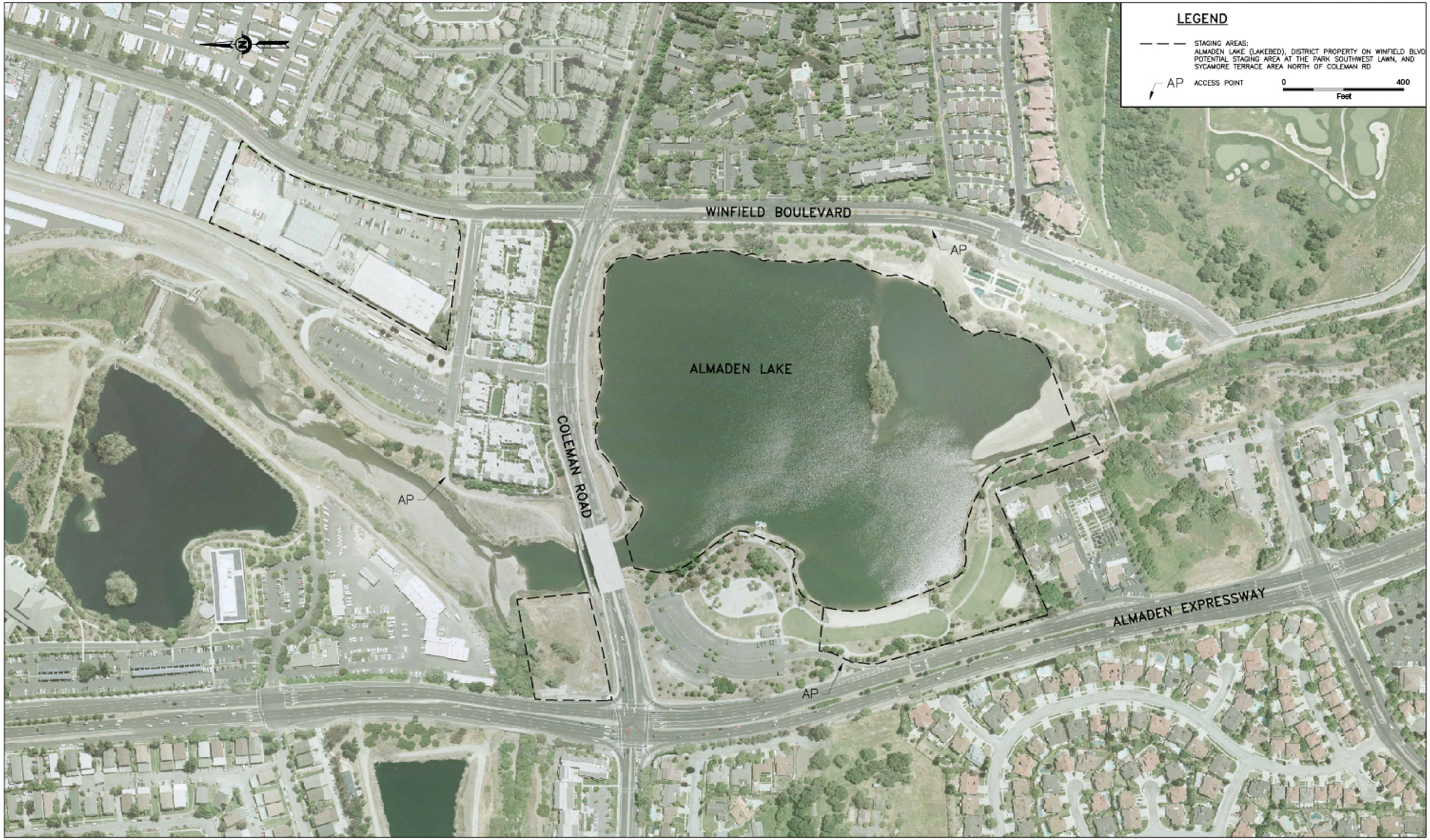


SOURCE: Santa Clara Valley Water District

Almaden Lake Improvement Project . 130679

Figure 2-2a

Conceptual Site Plan: Almaden Lake

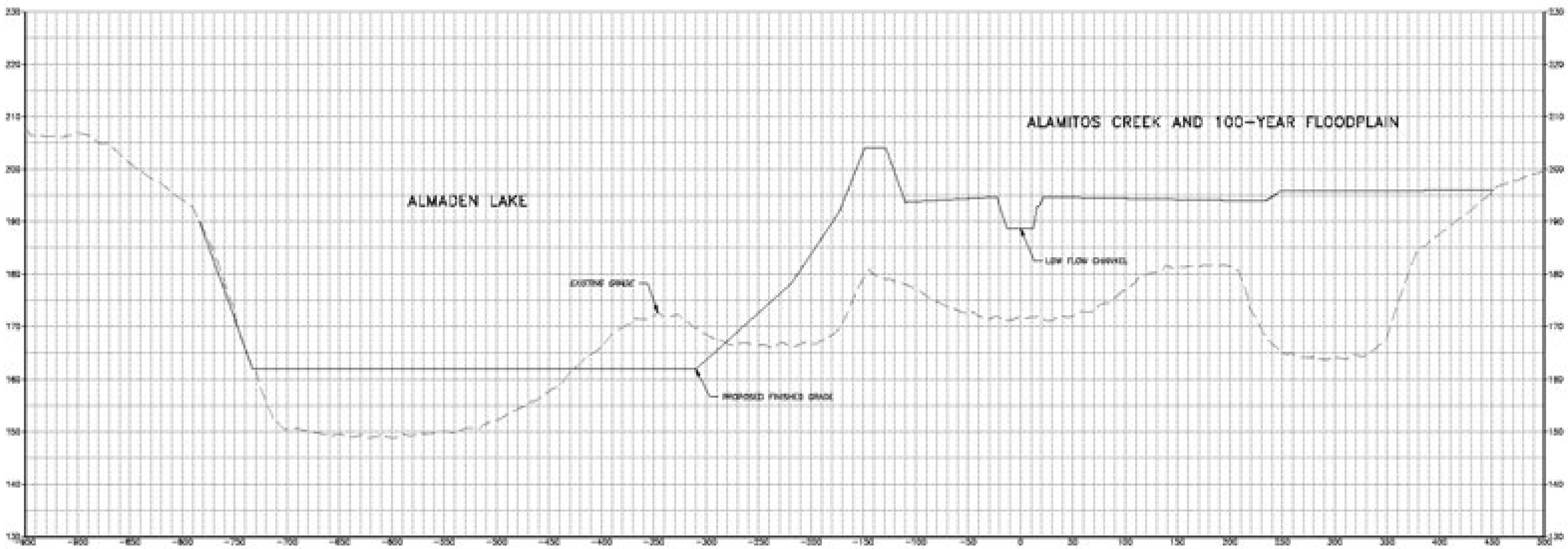


SOURCE: Santa Clara Valley Water District

Almaden Lake Improvement Project . 130679

Figure 2-2b

Site Plan: Staging Areas and Site Access



SOURCE: Santa Clara Valley Water District

Almaden Lake Improvement Project . 130679

Figure 2-3
Project Cross Section

2.D.1 Project Components

Alamitos Creek/Almaden Lake Separation

Alamitos Creek Channel Restoration

The proposed Project would restore Alamitos Creek within the Project area, in an isolated, 1,800-foot long, leveed corridor. The restored creek section would feature a 25- to 45-foot wide low flow channel that would convey normal daily flows along the creek, bounded on either side by a 210- to 420-foot wide restored flood channel. The low flow channel would incorporate woody debris, boulders, or rootwads to create natural velocity breaks and dissipate flows.

The vegetated and restored flood channel would be designed to convey a 100-year flood event, equivalent to a flow rate of approximately 8,250 cubic feet per second (cfs), with a minimum of 2 feet of freeboard below the top of the proposed levee. The current (pre-project) creek and lake configuration also conveys a 100-year flood event. The intent of the new channel design is to maintain the same level of flood protection as the pre-project condition and avoid reintroduction of creek water and sediments to Almaden Lake.

The creek channel would be restored by developing and implementing a stable geomorphic channel design. The geomorphic design would include a riffle-pool-run pattern, designed to neither aggrade nor degrade, for the entire length of the restored creek section. The slope and riffle-pool-run pattern would be similar to the Alamitos Creek channel section immediately upstream of the Project area.

Stream bank protection may be required along:

- The existing Alamitos Creek west bank upstream of the future creek floodplain area,
- The new and existing Alamitos Creek east bank at the upstream tie-in area,
- The new Alamitos Creek eastern levee at the downstream tie-in area,
- The existing east and west embankments of Almaden Lake at the downstream tie-in area,
- Other limited areas within the creek channel embankments as needed (to be determined during design).

Bank protection measures would be determined during design and may consist of buried log toe protection or buried rock rip rap. Bank protection measures would be designed to prevent channel scour and erosion.

The proposed west and east embankments of the isolated Alamitos Creek channel would be graded to have similar slopes to the upstream and downstream connecting corridor sections – that is, 2 horizontal to 1 vertical (2H:1V). The west embankment adjacent to the low bench planting area that would consist of upland woodland vegetation is mostly flat and maintains an elevation of approximately 196 feet NAVD. The rest of the west embankment would conform to the natural bank at approximately 3H:1V slope. The eastern levee between the lake and the isolated channel would be constructed with a width of 20-feet (SCVWD, 2015a) at an elevation of 204 feet NAVD. The soil beneath the new levee would be reinforced by incorporating cement deep soil mixing (CDSM), an in situ treatment whereby native soils or fills are blended with cementitious and/or other materials, referred to as binders. The soil-binder composite material that is created enhances the soil's overall engineering properties, increases the soil's strength, lowers permeability to water, and reduces the soil's compressibility and settlement.

The District designed the proposed creek channel in the Project area to be stable and confined within the intended channel areas during storm and flood events, with balanced sediment loads. Channel design was informed by two analyses developed by the District:

- Draft Sediment Transport Analysis, which utilized a HEC-RAS sediment transport capacity module to determine sediment transport capacity using bankfull design flow. The analysis compared the existing upstream reach and the proposed reach to determine a channel slope that could accommodate anticipated sediment volumes (SCVWD, 2017a).
- Bankfull Discharge Analysis, which utilized a HEC-RAS hydraulic model to determine the effective discharge for Alamitos Creek just upstream of Almaden Lake in order to appropriately size the proposed creek channel (SCVWD, 2016a).

Tie-in locations (i.e., the location at which the grade of the proposed levee would blend into the existing park) would occur at the north and south ends of the new levee along both sides of the restored creek section as identified on Figures 2-2 and 2-3. At the north tie-in location of the new levee, the existing area would be raised to blend the slope of the levee with the contours of the park. The levee would have an armored aggregate finish surface and would be utilized both as a road for District and Park maintenance vehicles and as a pedestrian pathway. The pedestrian pathway would connect with the existing Guadalupe River Trail at the north end of the lake and with the existing Los Alamitos Creek Trail at the south end of the lake. As noted with the north tie-in location above, minor grade modifications would be made to approximately 150 linear feet of the existing Guadalupe River Trail at the north end of the lake to match the finished grade of the proposed levee.

Boat House and Boat Launch Ramp Relocation

The Project calls for the relocation of the existing boat house and boat launch ramp for the City operated pedal boats, located on the west bank of the existing lake. Relocation is necessary to maintain the facilities' connection to the lake area. The existing westerly boat launch and boathouse would be relocated to the southern bank of Almaden Lake, with input and direction regarding the siting requirements of these structures provided by the City of San José (City of San José, 2018), as shown on Figure 2-2.

Alamitos Creek Maintenance Access Ramps

The Project would install two creek maintenance access ramps and one maintenance pathway intended for use by the District's operation and maintenance staff. The maintenance access ramps and pathway would not be open to the public. The ramps and pathway would be used to perform creek maintenance, as required. One ramp would be constructed on the west bank of the downstream end of the restored channel section, and the second ramp would be constructed on the east bank of the upstream end of the restored channel section (SCVWD, 2015c; SCVWD, 2015d). The pathway would be constructed in a west to east direction on the west side of the upstream end of the restored channel section.

Separated Almaden Lake

The Project would separate Almaden Lake from Alamitos Creek, and the lake would reduce in area from a 32-acre lake to a 17-acre lake (Figure 2-2). The Project would re-contour the bottom of Almaden Lake to eliminate the existing submerged remnant quarry dikes and pits. Once re-contoured, existing mercury laden sediment would be capped with at least 2.5 feet of clay/levee fill material.[5] The final lake depth would be approximately 26 to 28 feet, with the deepest areas located at the center of the lake. The proposed lake bottom contour would gradually slope up to meet the toe of the lake's existing and proposed westerly embankments. The proposed westerly lake embankment would be sloped similar to the existing lake's bank slopes at approximately 2H:1V. Relative to a lake water level ranging from 188 feet to 190 feet above msl (consistent with existing conditions), the height of the proposed levee would be approximately 14 to 16 feet above the lake water surface.

It is estimated that the Project would require approximately 600 acre-feet of water to fill the re-contoured and capped lake following construction. A water budget prepared for maintaining the lake determined that approximately 7.5 cubic feet per second (cfs) of water would be needed in the summer months to circulate through the lake to maintain water quality to support recreational uses (equivalent to about 450 acre-feet a month). The remainder of the year would be slightly less (approximately 5 cfs) for a total of approximately 4,350 AFY. To circulate the water, an equal amount of water would be pumped from the lake via an outlet structure into a new pipeline connecting to Los Alamitos Percolation Pond. A discussion of water supply contingencies in the event of drought conditions is included in the Water Management in Almaden Lake: Flow-Through System to Los Alamitos Percolation Pond section, below.

Open Park Area Conversion

On the westerly side of the Project area, the Project would expand the open park area into the existing west beach and its adjacent open water area by approximately two acres.

The Project would convert a 1.6-acre open water area and 0.4 acres of the existing beach into an open park area. The 1.6-acre converted open park area immediately adjacent to the

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5 The clay and levee fill material would consist of the same material and be in accordance with Levee Fill Material as specified in the District's Levee Safety Technical Guidance Manual. According to the District's Levee Safety Technical Guidance Manual, levee fill material is defined as soil free of organic matter, deleterious substances, debris and rocks or lumps larger than four inches in the greatest dimension; no more than 15 percent of the rocks or lumps are larger than 2-1/2 inches; at least 75 percent of the material is finer than No. 4 U.S. Standard Sieve and 50 percent is finer than No. 200 U.S. Standard Sieve; the plasticity index is between 10 and 20 percent; and hydraulic conductivity is 10^{-6} centimeter per second or less (SCVWD, 2002).

restored top of the creek bank would be mulched and planted with trees and riparian vegetation. The landscaping and open space use of the converted park area would be determined by the City. The 0.3-acre park area in the vicinity of the existing boathouse would be retained (Figure 2-2). Security lighting would not be required beyond what is already present in the Park.

New and Expanded Islands

The Project would expand the existing island, and create a second island in the proposed lake area. In several places, the existing island's outer banks are unstable. To stabilize these areas, the existing island's east and west shores would be excavated, while the north and south shores would be expanded, creating an island with a total area of approximately 0.75 acres. The Project proposes construction of a second approximate 0.75-acre island to the north of the existing island, to provide lake complexity and to break the water surface to discourage use by seagulls. The two islands would each be between 120 feet and 240 feet in length, with gradient side slopes between 1H:1V and 2H:1V. The perimeter of the expanded existing island would be approximately 700 feet, and the perimeter of the new island would be approximately 785 feet. Public access to the islands would be prohibited.

Water Management in Almaden Lake: Flow-Through System to Los Alamitos Percolation Pond

The District would maintain a lake water level ranging from 188 feet to190 feet above msl (consistent with existing conditions) under the Project. The District assessed several potential water supply sources for the lake, using the following criteria to select a preferred option:

- Be available and adequate to fill and maintain the lake level during non-drought years once the lake is separated from Alamitos Creek.
- Minimize impacts to water supply operations, including maintaining the District's water rights.
- Maintain water quality in Almaden Lake for non-contact uses.
- Minimize operational costs (SCVWD, 2018b).

Almaden Valley Pipeline Water Source

As a result of the water source analysis, the District proposes a flow-through system that uses imported water from Almaden Valley Pipeline as the water source for the lake, allows water circulation within the lake, and discharges water from the lake via a pipeline to Los Alamitos Percolation Pond. Among other factors, imported water from Almaden Valley Pipeline contains less mercury than water from the Guadalupe River Watershed (with its direct link to the decommissioned New Almaden Quicksilver Mine). Utilizing imported water would minimize the direct reintroduction of mercury-laden sediment to the lake.

The proposed flow-through water management system would provide a continual flow of water through Almaden Lake to improve water quality. The flow-through system would circulate approximately 7.5 cfs of water through the lake from May through September, and about 5.0 cfs during October through April, equivalent to approximately 4,350 AFY that would pass through the lake provided that there is sufficient imported water available and capacity in Alamitos Percolation Pond. No changes to District water rights would be required to implement this system.

There could be times when the District would not be able to provide Almaden Valley Pipeline water to Almaden Lake, including due to drought conditions,[6] insufficient imported water supply, periodic system maintenance, or higher pressing water supply needs elsewhere in the Santa Clara County.

Imported water from Almaden Valley Pipeline would be accessed via the Almaden Valley Pipeline, which is approximately 0.5 miles upstream of Almaden Lake Park east of Alamitos Creek. An approximately 2,900-foot underground pipe would be constructed to deliver imported water from the Almaden Valley Pipeline to Almaden Lake. The proposed pipeline would be sized to accommodate flows of 5 cfs to 10 cfs. The 16-inch diameter pipe would be gravity fed and aligned along the west side of Crossview Circle/Court and cut in to the east side of the Los Alamitos Creek Trail, and would traverse southern parkland at Almaden Lake Park to the intake location on the southern end of Almaden Lake (**Figure 2-4**).

Outlet to Los Alamitos Percolation Pond

Water from Almaden Lake would be pumped via an approximately 2,000 to 2,600-foot long, 24-inch diameter pipeline to Los Alamitos Percolation Pond, where it would be used for groundwater recharge. Water would be conveyed through an outlet structure and pipeline that would be constructed at the north end of the lake.

The alignment would extend through the northern end of the new levee and under the restored creek section near Coleman Road (**Figure 2-5**). The alignment would connect to either Pump Station A (underground pump station, described in Pump Station section, below) located in the northeast corner of the Almaden Lake Park parking lot or Pump Station B (aboveground pump station, described in Pump Station section, below) located on the northern end of the new levee.

The alignment would continue west under the Almaden Lake Park parking lot to the corner of Almaden Expressway and Coleman Road, and then would extend north parallel to the northbound Almaden Expressway roadway, crossing under Coleman Road, the City of San José property at the northeast corner of Almaden Expressway and Coleman Road, and Guadalupe Creek, and continuing north on District property to connect with the existing transfer pipeline between Los Capitancillos Percolation Ponds and Los Alamitos Percolation Pond.

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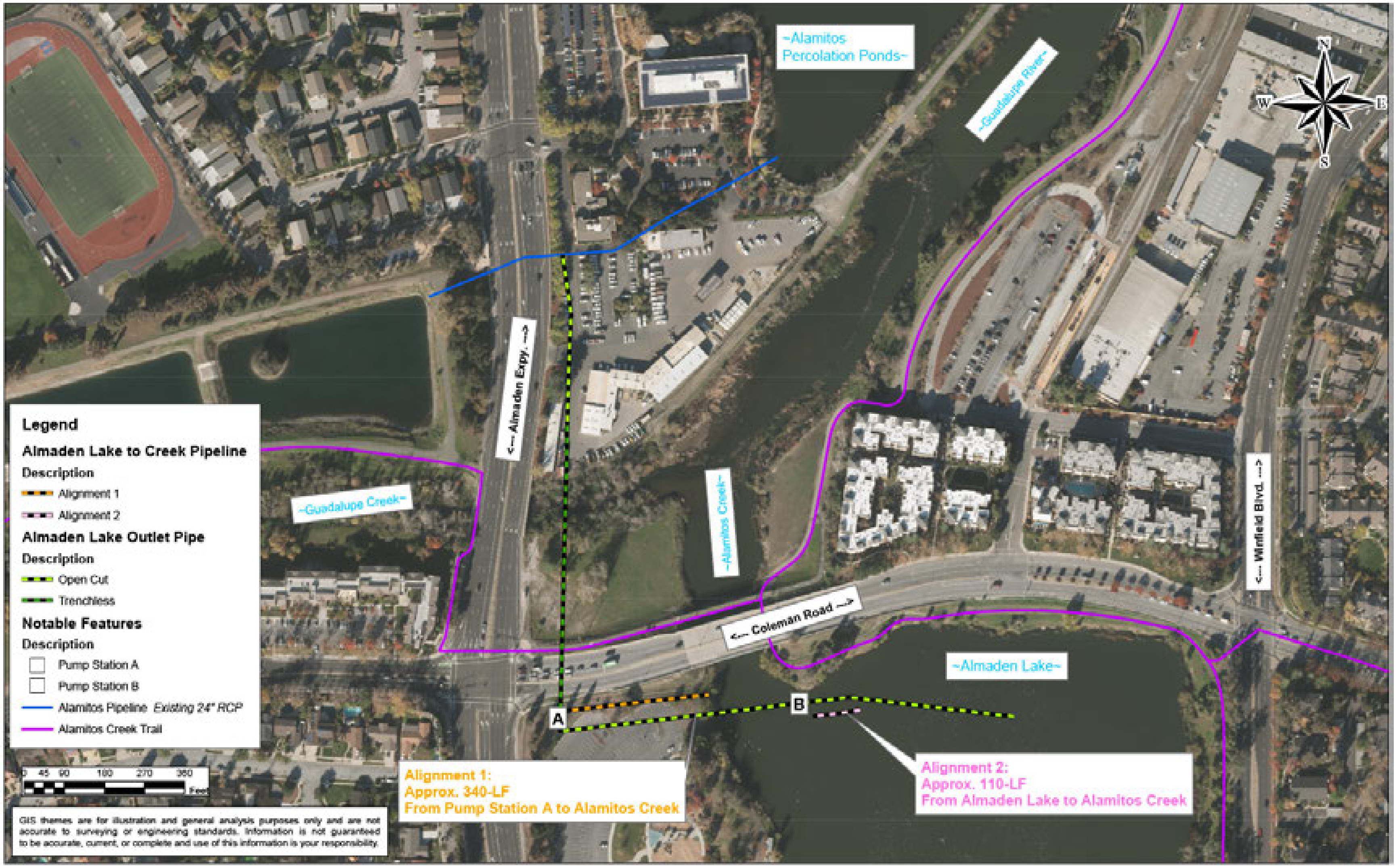
6 During drought periods when there may be insufficient imported water to supply the lake, the District may temporarily suspend pumping lake water to the percolation pond.

SOURCE: Santa Clara Valley Water District

Almaden Lake Improvement Project. 130679

Figure 2-4
Almaden Valley Pipeline Alignment



SOURCE: Santa Clara Valley Water District

Almaden Lake Improvement Project . 130679

Figure 2-5
Los Alamitos Percolation Pond Alignment Options

Adequate capacity would need to be available in the Los Alamitos Percolation Pond to transfer water (SCVWD, 2018b). Los Alamitos Percolation Pond could be periodically unavailable due to drought conditions,[7] maintenance, use of the Pond for local water to utilize water rights, or due to high groundwater levels (when the groundwater basin is full and additional recharge is not desired). During times when the Pond is unavailable, Almaden Lake overflow water could be discharged to Alamitos Creek via an outlet pipeline connected to the pump station. There are two potential alignments for this outlet pipeline shown in Figure 2-5. One alignment connects directly from the lake to the creek and would be controlled via a valve. The other alignment connects from the Pump Station A to the creek. The alignment would be selected during design based on operation and maintenance considerations.

Pump Station

The Project would include a pump station to pump water from Almaden Lake to Los Alamitos Percolation Pond at flows between 5 cfs to 15 cfs, with a total capacity of 20 cfs. The pump station would consist of one to two operating pumps, each approximately 135 HP, running simultaneously with one backup pump to achieve the 20 cfs capacity. The Project would implement one of two pump station options, depending on the outlet pipeline alignment selected during Project design:

- **Pump Station A** would be an above-ground pump station structure housing the operating and backup pumps. Pump Station B would be in the northeast corner of the Almaden Lake Park parking lot, and would pump outlet water for Alignment 1 (Figure 2-5).
- **Pump Station B** would be a deep well underwater pump station located in the northwestern corner of the reconfigured lake, and would pump outlet water for pipeline Alignment 2 (Figure 2-5). Pump Station A would be constructed of stackable, large diameter concrete rings with submersible pumps on rails.

The pump station would include an outlet pipeline to Alamitos Creek in the event that Almaden Lake water could not be transferred to Los Alamitos Percolation Pond, and would need to be released into Alamitos Creek.

Solar Bees

The District would continue water circulation improvements in Almaden Lake by increasing the number of SolarBee circulators in the lake. The SolarBees circulate the water column in the lake and alleviate the anoxic (i.e., low oxygen) conditions that contribute to the formation of methylmercury. The four existing SolarBee circulators improve circulation in the top of the water column (i.e., the epilimnion), but do not circulate water in the deep former quarry pits. The Project would increase the number of SolarBees to a total of seven. Two of the new SolarBee circulators would be installed within the deep waters of the lake to improve the overall mixing of water near the lake bottom (i.e., the hypolimnion). Circulation of the hypolimnion would likely be improved once the lake bottom has been contoured. The third new SolarBee circulator would be installed within the shallow lake waters to improve the

[7] During drought periods when there may be insufficient imported water to supply the lake, the District may temporarily suspend pumping lake water to the percolation pond.

circulation of water within the epilimnion, where algae blooms are known to occur during the summer months.

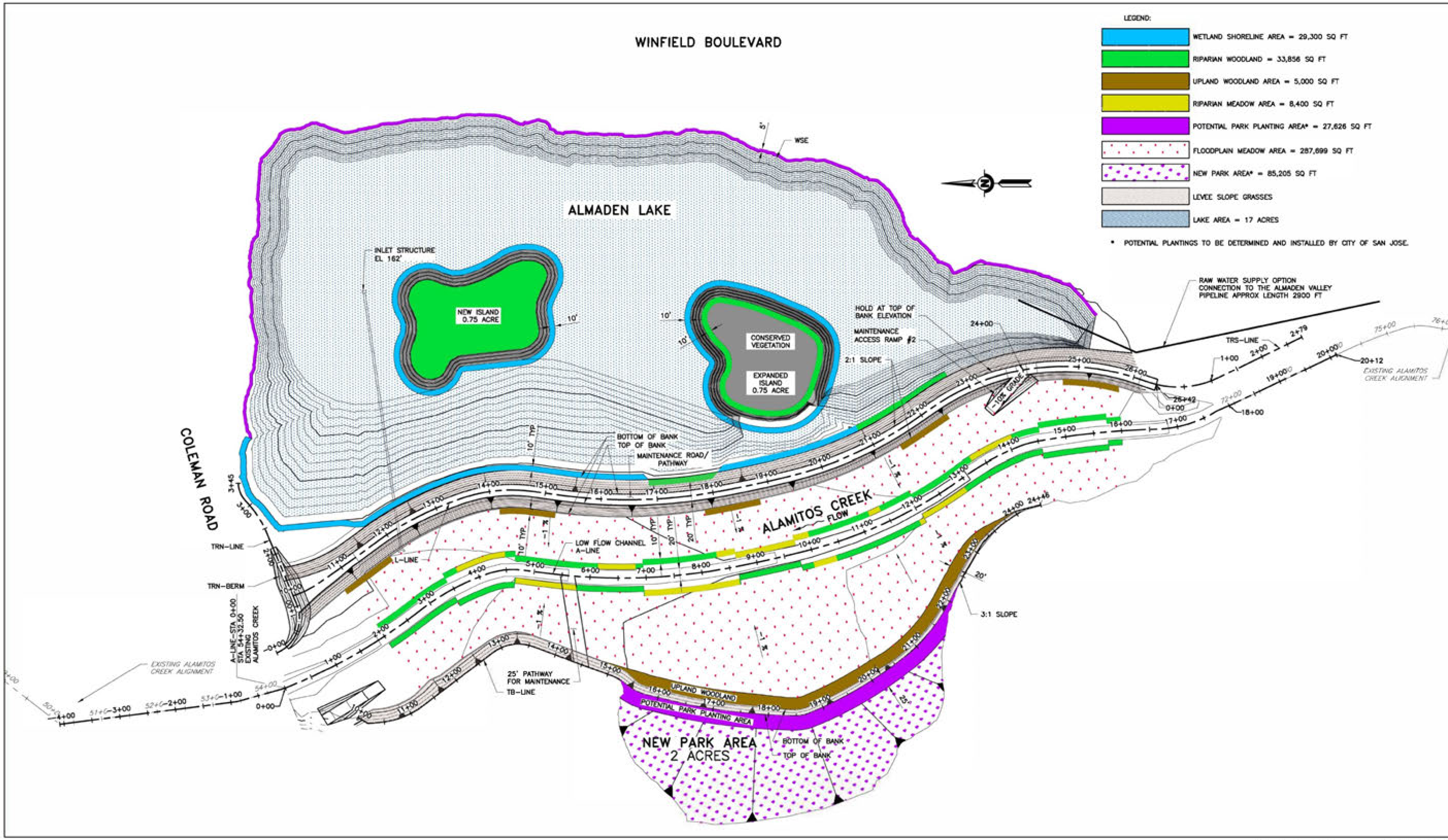
Native Revegetation

Upon completion of construction, native vegetation would be planted along the banks and floodplain of the restored Alamitos Creek (adjacent to the new lake edge and expanded park area), and the banks of the enlarged and new islands (SCVWD, 2015a). **Figure 2-6** depicts a conceptual revegetation plan. The intent of the native revegetation would be to maximize the habitat benefits and long-term sustainability of the Project and ensure exceptional quality habitat. The revegetation would help stabilize the newly restored channel morphology, shade the channel helping moderate water temperature, and provide habitat structure and diversity. All plants utilized for revegetation in these areas would be native plant species consistent with existing Alamitos Creek upstream channel vegetation, consistent with the District's Water Resources Protection Manual (SCVWD, 2006), appropriate to the post-construction site conditions (e.g., depths to groundwater, inundation frequency, and aspect), and can be acquired locally and commercially. **Figure 2-7** illustrates conceptual planting details for typical riffle and pool segments of the restored creek channel.

The banks and lower floodplain of the restored channel would be planted with a corridor of native riparian trees and shrubs, such as various willows (*Salix* spp.), box elder (*Acer negundo*), mulefat (*Baccharis salicifolia*), and California blackberry (*Rubus ursinus*). These tree and shrub plantings would be interspersed with patches of wetland forbs, such as Pacific aster (*Symphyotrichum chilense*), western goldentop (*Euthamia occidentalis*), California mugwort *(Artemisia douglasiana)*, and flatsedge (*Cyperus* spp.).

The upper floodplain of the restored channel would be planted with native herbs and grasses, such as California poppy (*Eschscholzia californica*), California goldenrod (*Solidago velutina* ssp. *Californica*), blue wildrye (*Elymus glaucus*), common rush (*Juncus* spp.), and various milkweeds (*Asclepias* spp.). These plantings would be interspersed with patches of upland trees and shrubs, such as western sycamore (*Platanus racemosa*), coast live oak (*Quercus agrifolia*), California buckeye (*Aesculus californica*), blue elderberry (*Sambucus nigra* ssp. *caerulea*), black sage (*Artemisia arbuscula*), and buckwheat (Eriogonum spp.). Planted areas would include the base of the lake- and park-side levees to stabilize floodplain soils and provide pollinator and bird habitat that is compatible with the conveyance of high flows across the floodplain.

The new lake shore and banks of the islands would be planted with wetland and aquatic species, such as yellow pond lily (*Nuphar lutea*), pondweeds (*Potamogeton* spp.), hornwort (*Ceratophyllum demersum*), pennywort (*Hydrocotyle* spp.), arrowhead (*Sagittaria* spp.), and bulrush (*Schoenoplectus acutus*). These bank and shoreline plantings would stabilize the banks and promote oxygenation of the lake. In total, the Project would install up to eight acres of locally sourced, native vegetation. In addition, two acres of open water and beach would be converted to park area would be planted in coordination with the City of San José Parks Department.



SOURCE: Santa Clara Valley Water District

Almaden Lake Improvement Project . 130679

Figure 2-6

Conceptual Revegetation Plan

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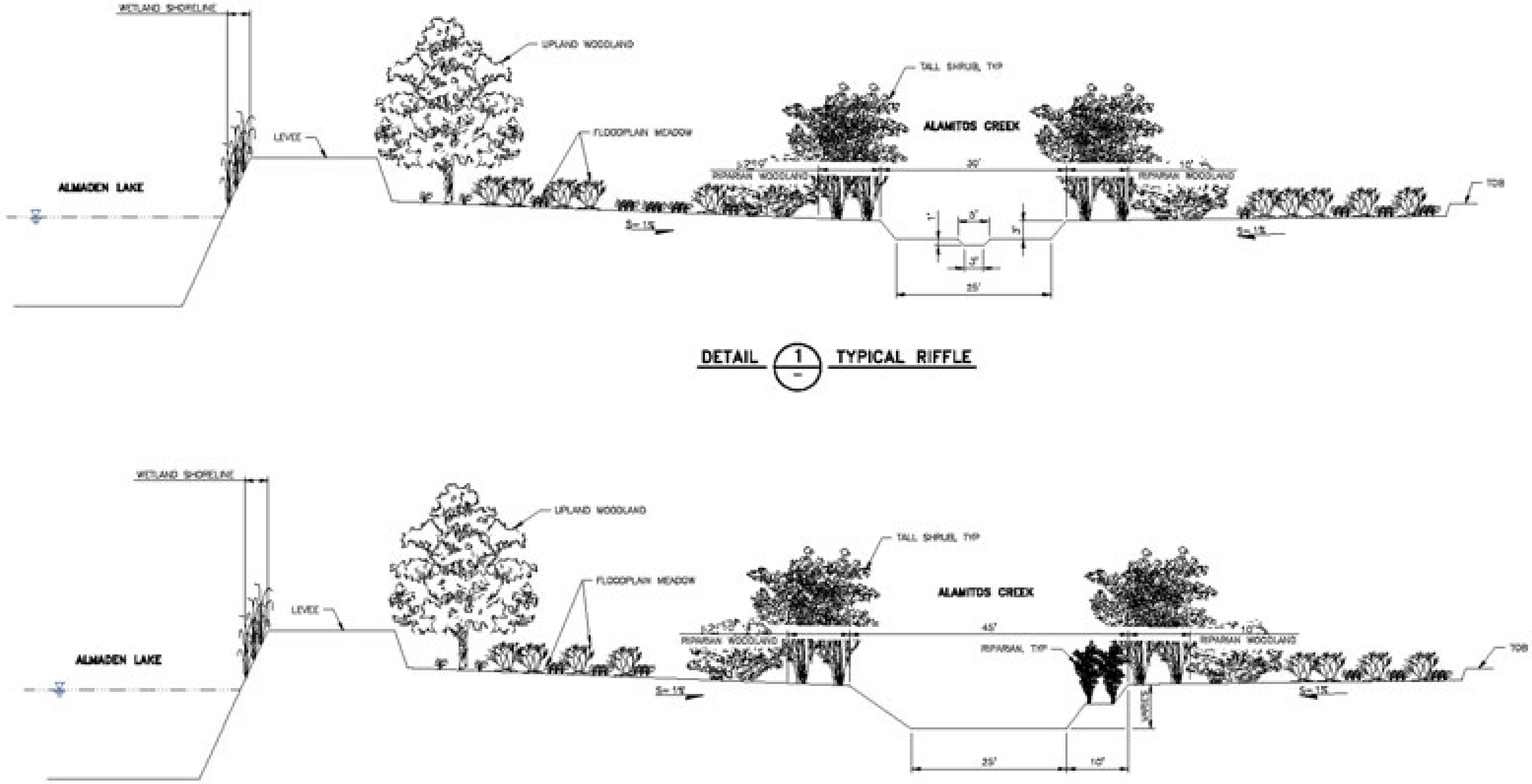

SOURCE: Santa Clara Valley Water District

Almaden Lake Improvement Project . 130679

Figure 2-7
Conceptual Riffle and Pool Planting Details

Summary of Fisheries Benefits

The Project elements identified above have been designed to benefit local, native fish populations by improving anadromous fish passage and riverine habitat, reducing non-native fish predation, reducing water temperatures and mercury methylation, and improving ecosystem function. These fish-related improvements are discussed below, and include beneficial effects on water quality to the creek by removing the artificial connection between Alamitos Creek and the lake. Note that the impact analysis contained in Chapter 3, Environmental Setting, Impacts, and Mitigation Measures provides an assessment of impacts that would occur as a result of implementation of the Project. The following discussion is meant to summarize the intent behind the proposed Project design.

Improved Anadromous Fish Passage

The proposed restored channel within the Almaden Lake footprint would eliminate migrating native fish from having to pass through the lake, and also eliminate the potential for native fish entrainment in the lake. Specifically, the approximately 1,800 linear feet of proposed channel along with water management practices would restore attraction flows for upstream migration, and allow improved juvenile fish migration within the restored channel separated from the lake. The improved passage conditions would support improved access to over 6.5 miles of Alamitos Creek and over 3.0 miles of Calero Creek.

Improved Riverine Habitat

The proposed channel restoration would facilitate natural sediment transport, allowing for movement of spawning gravel and the creation of a geomorphically stable channel. Natural sediment dynamics would facilitate the development of aquatic habitat features that are essential to suitable habitat for native fish, such as deposition of gravel for spawning, pools for rearing, and riffles for food production.

Reduced Predation

By restoring the channel, the Project would prevent native fish from swimming into Almaden Lake, which is preferred habitat for non-native predatory fish. Instead, native fish would be within the restored channel separated from the lake. The restored channel would have temperature and flows that are less conducive to non-native predatory species. Of the approximately 1,800 linear feet (0.32 miles) of creek section proposed for restoration, only about 200 linear feet would remain as an impoundment when the flashboard dam is in place, generally outside of migration periods of native fish. At times when the flashboard dam is not in place, the restored creek section would function as continuous riverine habitat.

Reduced Water Temperature

In a natural river system, cool water from headwater streams flows downstream and gradually warms. Shading by riparian vegetation and natural riverine processes moderate that warming. In the presence of Almaden Lake, cool inflow becomes entrained in the lake. Due to the lake's large volume and direct exposure to sunlight, its water is frequently heated to levels that can reduce reproductive success of salmonids and rearing potential (SCBWMI, 2003). This water, warmed by the lake, is then discharged downstream into the Guadalupe River. By removing the warming influence of the lake, allowing water to flow through the restored channel, and providing a shaded river corridor, warming is expected to be reduced during passage of water through the Project area.

Reduced Mercury Methylation

The proposed Project would reduce mercury methylation in the lake. The Project would cap existing mercury in the lake bottom, and create a flow-through lake system utilizing an imported water source with lower elemental mercury content, removing the direct linkage of Alamitos Creek water flowing into the lake and eliminating the deposition of elemental mercury into the lake from upstream sources. Furthermore, the SolarBee control measures would circulate lake water, and assist with alleviating anoxic conditions that favor the formation of methylmercury.

Improved Ecosystem Function

The proposed creek/lake separation would create new lake and stream margins planted with native species, resulting in an increase in wetland, riparian, and upland vegetation. The channel, bank, and floodplain grading would create physically-appropriate locations for a variety of vegetation types. This increase in vegetation, particularly of native species that are appropriate for the restored conditions, would enhance ecosystem function associated with these vegetation types.

Summary of Recreation Benefits

The Project elements identified above have been designed to address key water quality, fish, and other issues, while also supporting existing recreational use of Almaden Lake Park by the surrounding community. Existing recreational uses would continue at the Park, with some facilities improvements as described below to enhance existing recreational uses.

The proposed features of the Project have been designed to minimize changes to existing recreational features, as described below. Note that the impact analysis contained in Chapter 3, Environmental Setting, Impacts, and Mitigation Measures provides an assessment of potential impacts associated with implementation of the Project. The following discussion is meant to summarize the intent behind the proposed Project design.

New Trail/Walking Path

The Project would create a new trail/walking path along the proposed levee that would separate Alamitos Creek and Almaden Lake. This pedestrian trail would provide a walking path that would allow opportunities for bird watching, observing the restored river channel, and strolling. This trail would tie into the existing, highly utilized Los Alamitos Creek and Guadalupe River trails, enhancing opportunities for visitors to traverse the Park, and would contribute to the regional urban trail system.

Enhanced Bird and Wildlife Viewing Opportunities

The proposed island reconfiguration and the construction of a new island in the lake would be designed to create beneficial habitat for migratory birds and bird watching opportunities for the public. This island habitat would also provide educational opportunities for local school children to observe a variety of species and gain an understanding of ecosystem functions. The development of a riparian corridor and other native habitat types along the restored creek channel and floodplain would also increase habitat for birds, further enhancing bird and wildlife watching opportunities.

New Open Park Area

The establishment of new open park area along the west side of the Park would provide opportunities for the City to create additional park features such as green space, event space, picnic areas, or educational opportunities for Park visitors.

2.E Project Construction

2.E.1 Avoidance and Minimization Measures

Avoidance and minimization measures are parameters built into the design of the Project and are committed to as part of Project implementation. Measures included those takes from the Santa Clara Valley Water District Best Management Practices Handbook (BMP Handbook) and from the Santa Clara Valley Habitat Plan.

District Best Management Practices

The District developed, and regularly updates, the BMP Handbook, which provides a comprehensive list of District best management practices (BMPs) that are regularly implemented in the design, development, and construction of District projects with the purpose of avoiding or minimizing adverse environmental effects (SCVWD, 2014a). Relevant BMPs have been incorporated into the Project, and are identified in the impact analyses in Chapter 3.

BMPs to be utilized in the Project:

BI-2: Minimize Impacts to Steelhead. Minimize potential impacts to salmonids by avoiding routine use of vehicles and equipment in salmonid streams between January 1 and June 15.

BI-3: Remove Temporary Fills. Temporary fill materials, such as for diversion structures or cofferdams, will be removed upon finishing the work or as appropriate. The creek channels and banks will be re-contoured to match pre-construction conditions to the extent possible. Low-flow channels within non-tidal streams will be contoured to facilitate fish passage and will emulate the preconstruction conditions as closely as possible, within the finished channel topography.

BI-5: Avoid Impacts to Nesting Migratory Birds. Nesting birds are protected by state and federal laws. The District will protect nesting birds and their nests from abandonment, loss, damage, or destruction. Nesting bird surveys will be performed by a qualified biologist prior to any activity that could result in the abandonment, loss, damage, or destruction of birds, bird nests, or nesting migratory birds. Inactive bird nests may be removed with the exception of raptor nests. Birds, nests with eggs, or nests with hatchlings will be left undisturbed.

BI-6: Avoid Impacts to Nesting Migratory Birds from Pending Construction. Nesting exclusion devices may be installed to prevent potential establishment or occurrence of nests in areas where construction activities would occur. All nesting exclusion devices will be maintained throughout the nesting season or until completion of work in an area makes the devices unnecessary. All exclusion devices will be removed and disposed of when work in the area is complete.

BI-7: Minimize Impacts to Vegetation from Survey Work. Survey cross-sections will be moved, within acceptable tolerances, to avoid cutting dense riparian vegetation and minimize cutting of woody vegetation, taking advantage of natural breaks in foliage. If the cross-section cannot be moved within the established acceptable tolerances to avoid impacts to dense riparian or woody vegetation, the survey section will be abandoned.

BI-8: Choose Local Ecotypes of Native Plants and Appropriate Erosion-Control Seed Mixes. Whenever native species are prescribed for installation the following steps will be taken by a qualified biologist or vegetation specialist:

1. Evaluate whether the plant species currently grows wild in Santa Clara County; and,
2. If so, the qualified biologist or vegetation specialist will determine if any need to be local natives, i.e. grown from propagules collected in the same or adjacent watershed, and as close to the project site as feasible.

Also, consult a qualified biologist or vegetation specialist to determine which seeding option is ecologically appropriate and effective, specifically:

1. For areas that are disturbed, an erosion control seed mix may be used consistent with the SCVWD *Guidelines and Standards for Land Use Near Streams, Design Guide 5, 'Temporary Erosion Control Options.'*
2. In areas with remnant native plants, the qualified biologist or vegetation specialist may choose an abiotic application instead, such as an erosion control blanket or seedless hydro-mulch and tackifier to facilitate passive revegetation of local native species.
3. Temporary earthen access roads may be seeded when site and horticultural conditions are suitable.
4. If a gravel or wood mulch has been used to prevent soil compaction, this material may be left in place [if ecologically appropriate] instead of seeding.

Seed selection shall be ecologically appropriate as determined by a qualified biologist, per *Guidelines and Standards for Land Use Near Streams, Design Guide 2: Use of Local Native Species*.

BI-9: Restore Riffle/Pool Configuration of Channel Bottom. The channel bottom shall be re-graded at the end of the work project to as close to original conditions as possible.

In salmonid streams, restore pool and riffle configurations to emulate pre-project instream conditions, taking into account channel morphological features (i.e., slope), which affects riffle/pool sequence.

HM-1: Comply with All Pesticide Application Restrictions and Policies. Pesticide products are to be used only after an assessment has been made regarding environmental, economic, and public health aspects of each of the alternatives by the District's Pest Control Advisor (PCA). All pesticide use will be consistent with approved product specifications. Applications will be made by, or under the direct supervision of, State Certified applicators under the direction of, or in a manner approved by the PCA. Refer to Q751D02, *Control and Oversight of Pesticide Use***.**

HM-2: Minimize Use of Pesticides. In all cases, where some form of pest control is deemed necessary by the PCA; evaluate alternative pest control methods and pesticides. Refer to Q751D02: *Control and Oversight of Pesticide Use*.

HM-3: Post Areas Where Pesticides Will Be Used. Posting of areas where pesticides are to be used shall be performed in compliance with Q751D02: *Control and Oversight of Pesticide Use.* Posting shall be performed in compliance with the label requirements of the product being applied.

In addition, the District shall provide posting for **any** products applied in areas used by the public for recreational purposes, and areas readily accessible to the public, regardless of whether the label requires such notification (the posting method may be modified to avoid destruction of bait stations or scattering of rodenticide), including:

1. Sign postings shall notify staff and the general public of the date and time of application; the product's active ingredients, and common name; and, the time of allowable re-entry into the treated area.
2. A District staff contact phone number shall be posted on the sign.
3. Signs shall not be removed until after the end of the specified re-entry interval.
4. Right-to-know literature on the product shall be made available upon request to anyone in the area.
5. Notification will take into account neighbors with specific needs prior to treatment of an adjacent area to ensure such needs are met. Such requests are maintained by the District under Q751D02.

HM-4: Comply with All Pesticide Usage Requirements. All projects that propose ongoing use of pesticides will comply with all provisions of Q751D02: *Control and Oversight of Pesticide Use*, including, but not necessarily limited to the following:

1. All pest control methods will be performed only after a written Pest Control Recommendation for use has been prepared by the District's PCA in accordance with requirements of the California Food and Agricultural Code.
2. F751D01 – *Pest Control Recommendation & Spray Operators Report* will be completed for each pesticide application.

HM-5: Comply with Restrictions on Herbicide Use in Upland Areas. Consistent with provisions of Q751D02: *Control and Oversight of Pesticide Use,* application of pre emergence (residual) herbicides to upland areas will not be made within 72 hours of predicted significant rainfall. Predicted significant rainfall for the purposes of this BMP will be described as local rainfall greater than 0.5 inch in a 24-hour period with greater than a 50% probability of precipitation according to the National Weather Service.

HM-6: Comply with Restrictions on Herbicide Use in Aquatic Areas. Consistent with provisions of Q751D02: *Control and Oversight of Pesticide Use,* only herbicides and surfactants registered for aquatic use will be applied within the banks of channels within 20 feet of any water present.

Furthermore, aquatic herbicide use will be limited to June 15th through October 31st with an extension through December 31 or until the first occurrence of any of the following conditions; whichever happens first:

1. local rainfall greater than 0.5 inches is forecasted within a 24-hour period from planned application events according to the National Weather Service; or
2. when steelhead begin upmigrating and spawning in the 14 steelhead creeks, as determined by a qualified biologist (typically in November/December).

If rain is forecast then application of aquatic herbicide will be rescheduled.

HM-7: Restrict Vehicle and Equipment Cleaning to Appropriate Locations. Vehicles and equipment may be washed only at approved areas. No washing of vehicles or equipment will occur at job sites.

HM-8: Ensure Proper Vehicle and Equipment Fueling and Maintenance. No fueling or servicing will be done in a waterway or immediate flood plain, unless equipment stationed in these locations is not readily relocated (i.e., pumps, generators).

1. For stationary equipment that must be fueled or serviced on-site, containment will be provided in such a manner that any accidental spill will not be able to come in direct contact with soil, surface water, or the storm drainage system.
2. All fueling or servicing done at the job site will provide containment to the degree that any spill will be unable to enter any waterway or damage riparian vegetation.
3. All vehicles and equipment will be kept clean. Excessive build-up of oil and grease will be prevented.
4. All equipment used in the creek channel will be inspected for leaks each day prior to initiation of work. Maintenance, repairs, or other necessary actions will be taken to prevent or repair leaks, prior to use.
5. If emergency repairs are required in the field, only those repairs necessary to move equipment to a more secure location will be done in a channel or flood plain.

HM-9: Ensure Proper Hazardous Materials Management. Measures will be implemented to ensure that hazardous materials are properly handled and the quality of water resources is protected by all reasonable means.

1. Prior to entering the work site, all field personnel will know how to respond when toxic materials are discovered.
2. Contact of chemicals with precipitation will be minimized by storing chemicals in watertight containers with appropriate secondary containment to prevent any spillage or leakage.
3. Petroleum products, chemicals, cement, fuels, lubricants, and non-storm drainage water or water contaminated with the aforementioned materials will not contact soil and not be allowed to enter surface waters or the storm drainage system.
4. All toxic materials, including waste disposal containers, will be covered when they are not in use, and located as far away as possible from a direct connection to the storm drainage system or surface water.

5. Quantities of toxic materials, such as equipment fuels and lubricants, will be stored with secondary containment that is capable of containing 110% of the primary container(s).
6. The discharge of any hazardous or non-hazardous waste as defined in Division 2, Subdivision 1, Chapter 2 of the California Code of Regulations will be conducted in accordance with applicable State and federal regulations.
7. In the event of any hazardous material emergencies or spills, personnel will call the Chemical Emergencies/Spills Hotline at 1-800-510-5151.

HM-11: Ensure Worker Safety in Areas with High Mercury Levels. To ensure worker safety is protected in areas with elevated mercury concentrations in exposed surfaces, personal protective equipment will be required during project construction to maintain exposure below levels established by the California Division of Occupational Safety and Health (Cal/OSHA).

HM-12: Incorporate Fire Prevention Measures.

1. All earthmoving and portable equipment with internal combustion engines will be equipped with spark arrestors.
2. During the high fire danger period (April 1–December 1), work crews will have appropriate fire suppression equipment available at the work site.
3. An extinguisher shall be available at the project site at all times when welding or other repair activities that can generate sparks (such as metal grinding) is occurring.
4. Smoking shall be prohibited except in designated staging areas and at least 20 feet from any combustible chemicals or vegetation.

WQ-3: Limit Impact of Pump and Generator Operation and Maintenance. Pumps and generators will be maintained and operated in a manner that minimizes impacts to water quality and aquatic species.

1. Pumps and generators will be maintained according to manufacturers' specifications to regulate flows to prevent dry-back or washout conditions.
2. Pumps will be operated and monitored to prevent low water conditions, which could pump muddy bottom water, or high water conditions, which creates ponding.
3. Pump intakes will be screened to prevent uptake of fish and other vertebrates. Pumps in steelhead creeks will be screened according to NMFS criteria.
4. Sufficient back-up pumps and generators will be onsite to replace defective or damaged pumps and generators.

WQ-5: Stabilize Construction Entrances and Exits. Measures will be implemented to minimize soil from being tracked onto streets near work sites:

1. Methods used to prevent mud from being tracked out of work sites onto roadways include installing a layer of geotextile mat, followed by a 4-inch thick layer of 1 to 3-inch diameter gravel on unsurfaced access roads.
2. Access will be provided as close to the work area as possible, using existing ramps where available and planning work site access so as to minimize disturbance to the water body bed and banks, and the surrounding land uses.

WQ-6: Limit Impact of Concrete Near Waterways. Concrete that has not been cured is alkaline and can increase the pH of the water; fresh concrete will be isolated until it no longer poses a threat to water quality using the following appropriate measures:

1. Wet sacked concrete will be excluded from the wetted channel for a period of four weeks after installation. During that time, the wet sacked concrete will be kept moist (such as covering with wet carpet) and runoff from the wet sacked concrete will not be allowed to enter a live stream.
2. Poured concrete will be excluded from the wetted channel for a period of four weeks after it is poured. During that time, the poured concrete will be kept moist, and runoff from the wet concrete will not be allowed to enter a live stream. Commercial sealants (e.g., Deep Seal, Elasto-Deck Reservoir Grade) may be applied to the poured concrete surface where difficulty in excluding water flow for a long period may occur. If a sealant is used, water will be excluded from the site until the sealant is dry.
3. Dry sacked concrete will not be used in any channel.
4. An area outside of the channel and floodplain will be designated to clean out concrete transit vehicles.

WQ-9: Use Seeding for Erosion Control, Weed Suppression, and Site Improvement. Disturbed areas shall be seeded with native seed as soon as is appropriate after activities are complete. An erosion control seed mix will be applied to exposed soils down to the ordinary high water mark in streams.

1. The seed mix should consist of California native grasses, (for example *Hordeum brachyantherum*; *Elymus glaucus*; and annual *Vulpia microstachyes*) or annual, sterile hybrid seed mix (e.g., *Regreen*™, a wheat x wheatgrass hybrid).
2. Temporary earthen access roads may be seeded when site and horticultural conditions are suitable, or have other appropriate erosion control measures in place.

WQ-10: Prevent Scour Downstream of Sediment Removal. After sediment removal, the channel will be graded so that the transition between the existing channel both upstream and downstream of the work area is smooth, and continuous between the maintained and non-maintained areas, and does not present a sudden vertical transition (wall of sediment) or other blockage that could erode once flows are restored to the channel.

WQ-12: Manage Well or Exploratory Boring Materials. All materials or waters generated during drilling, well or exploratory boring construction, well development, pump testing, or other activities associated with wells or exploratory borings, will be safely handled, properly managed, and disposed of according to all applicable federal, state, and local statutes regulating such. In no case will these materials and/or waters be allowed to enter, or potentially enter, on- or off-site storm sewers, dry wells, or waterways. Such materials/waters must not be allowed to move off the property where the work is being completed.

WQ-13: Protect Groundwater from Contaminates Via Wells or Exploratory Borings. Any substances or materials that may degrade groundwater quality will not be allowed to enter any well or boring. Lubricants used on drill bits, drill pipe, or tremie pipe will not be comprised of oily or greasy substances or other materials that may degrade groundwater quality.

Well openings or entrances will be sealed or secured in such a way as to prevent the introduction of contaminants.

WQ-15: Prevent Water Pollution. Oily, greasy, or sediment laden substances or other material that originate from the project operations and may degrade the quality of surface water or adversely affect aquatic life, fish, or wildlife will not be allowed to enter, or be placed where they may later enter, any waterway.

The project will not increase the turbidity of any watercourse flowing past the construction site by taking all necessary precautions to limit the increase in turbidity as follows:

1. where natural turbidity is between 0 and 50 Nephelometric Turbidity Units (NTU), increases will not exceed 5 percent;
2. where natural turbidity is greater than 50 NTU, increases will not exceed 10 percent;
3. where the receiving water body is a dry creek bed or storm drain, waters in excess of 50 NTU will not be discharged from the project.

Water turbidity changes will be monitored. The discharge water measurements will be made at the point where the discharge water exits the water control system for tidal sites and 100 feet downstream of the discharge point for non-tidal sites. Natural watercourse turbidity measurements will be made in the receiving water 100 feet upstream of the discharge site. Natural watercourse turbidity measurements will be made prior to initiation of project discharges, preferably at least 2 days prior to commencement of operations.

WQ-16: Prevent Stormwater Pollution. To prevent stormwater pollution, the applicable measures from the following list will be implemented:

1. Soils exposed due to project activities will be seeded and stabilized using hydroseeding, straw placement, mulching, and/or erosion control fabric. These measures will be implemented such that the site is stabilized and water quality protected prior to significant rainfall. In creeks, the channel bed and areas below the Ordinary High Water Mark are exempt from this BMP.
2. The preference for erosion control fabrics will be to consist of natural fibers; however, steeper slopes and areas that are highly erodible may require more structured erosion control methods. No non-porous fabric will be used as part of a permanent erosion control approach. Plastic sheeting may be used to temporarily protect a slope from runoff, but only if there are no indications that special-status species would be impacted by the application.
3. Erosion control measures will be installed according to manufacturer's specifications.
4. To prevent stormwater pollution, the appropriate measures from, but not limited to, the following list will be implemented:
    - Silt Fences
    - Straw Bale Barriers
    - Brush or Rock Filters
    - Storm Drain Inlet Protection
    - Sediment Traps or Sediment Basins
    - Erosion Control Blankets and/or Mats

- Soil Stabilization (i.e., tackified straw with seed, jute or geotextile blankets, etc.)
- Straw mulch.

5. All temporary construction-related erosion control methods shall be removed at the completion of the project (e.g., silt fences).
6. Surface barrier applications installed as a method of animal conflict management, such as chain link fencing, woven geotextiles, and other similar materials, will be installed no longer than 300 feet, with at least an equal amount of open area prior to another linear installation.

TR-1: Incorporate Public Safety Measures. Fences, barriers, lights, flagging, guards, and signs will be installed as determined appropriate by the public agency having jurisdiction, to give adequate warning to the public of the construction and of any dangerous condition to be encountered as a result thereof.

Santa Clara Valley Habitat Plan Avoidance and Minimization Measures

The SCVHP includes avoidance and minimization measures to protect endangered species and natural resources during activities permitted under the plan; a comprehensive discussion of these measures is presented in Appendix C – Santa Clara Valley Habitat Plan.

1. Minimize the potential impacts on covered species most likely to be affected by changes in hydrology and water quality.

5. Invasive plant species removed during maintenance will be handled and disposed of in such a manner as to prevent further spread of the invasive species.

13. Personnel shall use the appropriate equipment for the job that minimizes disturbance to the channel bed and banks. Appropriately-tired vehicles, either tracked or wheeled, shall be used depending on the situation.

15. If native fish or non-covered, native aquatic vertebrates are present when cofferdams, water bypass structures, and silt barriers are to be installed, a native fish and aquatic vertebrate relocation plan shall be implemented when ecologically appropriate as determined by a qualified biologist to ensure that significant numbers of native fish and aquatic vertebrates are not stranded.

    Prior to the start of work or during the installation of water diversion structures, native aquatic vertebrates shall be captured in the work area and transferred to another reach as determined by a qualified biologist. Timing of work in streams that supports a significant number of amphibians will be delayed until metamorphosis occurs to minimize impacts to the resource. Capture and relocation of aquatic vertebrates is not required at individual project sites when site conditions preclude reasonably effective operation of capture gear and equipment, or when the safety biologist conducting the capture may be compromised.

    Listed species not covered by the Habitat Plan will not be relocated without the appropriate permits and authorizations from the correct agencies.

Relocation of native fish or aquatic vertebrates may not always be ecologically appropriate. Prior to capturing fish and/or vertebrates, the qualified biologist will use factors, including site conditions, system carrying capacity for potential relocated fish, and flow regimes (e.g., if flows are managed) to determine whether a relocation effort is ecologically appropriate. If so, the following factors will be considered when selecting release site(s):

1. Similar water temperature as capture location;
2. Ample habitat availability prior to release of capture individuals;
3. Presence of other same species so that relocation of new individuals will not upset the existing prey/predation function;
4. Carrying capacity of the relocation location;
5. Potential for relocated individual to transport disease; and
6. Low likelihood of fish reentering work site or becoming impinged on exclusion net or screen.

Proposals to translocate any covered species will be reviewed and approved by the Wildlife Agencies.

20. Conditions for fish passage shall be met as long as the diversion;

    1. Maintains contiguous flows through a low flow channel bed or an artificial open channel,
    2. Presents no vertical drops exceeding six (6) inches and follows the natural grade of the site,
    3. Maintains flow at the downstream end of the diversion within 1 cubic foot per second (cfs) of flows at the upstream end, and
    4. Maintains adequate water depths in the bypass channel to ensure no impediment to upstream or downstream movement of fish is imposed.

30. Vegetation control and removal in channels, on stream banks, and along levees and maintenance roads shall be limited to removal necessary for facility inspection purposes, or to meet regulatory requirements or guidelines.

31.1 When conducting vegetation management, retain as much understory brush and as many trees as feasible, emphasizing shade-producing and bank-stabilizing vegetation. Carry out the activity in such a manner as to minimize impacts to the natural community present and encourage regrowth of the community structure appropriate to the site.

31.2 If riparian vegetation is to be removed with chainsaws, consider using saws currently available that operate with vegetable-based bar oil.

44. Maintenance of natural stream characteristics consistent with the stream section, such as riffle-pool sequences, riparian canopy, sinuosity, floodplain, and natural channel bed, will be incorporated into the Project design.

49. The project or activity must be designed to avoid the removal of native riparian vegetation, where feasible. If the removal native of riparian vegetation is

necessary, the amount shall be minimized to the amount necessary to accomplish the required activity and comply with public health and safety directives. Impacts to nonnative vegetation that is determined to be providing unique habitat value (such as shading, foraging habitat, or nesting area) shall be avoided and minimized in the same manner as native vegetation.

50. If levee reconstruction requires the removal of vegetation that provides habitat value to the adjacent stream (e.g., shading, bank stabilization, food sources, etc.), then the project will include replacement of the vegetation/habitat that was removed during reconstruction unless it is determined to be inappropriate to do so by the relevant resource agencies (e.g., CDFW and USFWS).

68. Stabilize stockpiled soil with geotextile or plastic covers. Materials that may entrap reptiles and amphibians, such as mono-filament erosion control materials, shall be avoided.

71. Preserve existing vegetation to the extent possible.

78. In-stream projects occurring while the stream is flowing must use appropriate measures to protect water quality, native fish and covered wildlife species at the Project site and downstream of the Project site.

80. All personnel working within or adjacent to the stream setback (i.e., those people operating ground-disturbing equipment) will be trained by a qualified biologist in these avoidance and minimization measures and the permit obligations of project proponents working under this Plan.

84.1 Appropriate erosion control measures (e.g., fiber rolls, filter fences, vegetative buffer strips) will be used on site to reduce siltation and runoff of contaminants into wetlands, ponds, streams, or riparian vegetation. Erosion control measures will be placed between the outer edge of the buffer and the project site.

84.2 Fiber rolls used for erosion control will be certified as free of noxious weed seed.

84.3 Filter fences and mesh will be of material that will not entrap reptiles and amphibians.

86. Topsoil removed during soil excavation will be preserved and used as topsoil during revegetation when it is necessary to conserve the natural seed bank and aid in revegetation of the site.

89. The potential for traffic impacts on terrestrial animal species will be minimized by adopting traffic speed limits.

90. All trash will be removed from the site daily to avoid attracting potential predators to the site. Personnel will clean the work site before leaving each day by removing all litter and construction-related materials.

91. To prevent the spread of exotic species and reduce the loss of native species, aquatic species will be netted at the drain outlet when draining reservoirs or ponds to surface waters. Captured native fish, native amphibians, and western pond turtles will be relocated if ecologically appropriate. Exotic species will be dispatched.

92. To minimize the spread of pathogens all staff working in aquatic systems (i.e., streams, ponds, and wetlands)—including site monitors, construction crews, and surveyors—will adhere to the most current guidance for equipment decontamination provided by the Wildlife Agencies at the time of activity implementation.

93. When accessing upland areas adjacent to riparian areas or streams, access routes on slopes of greater than 20% should generally be avoided. Subsequent to access, any sloped area should be examined for evidence of instability and either revegetated or filled as necessary to prevent future landslide or erosion.

95. To minimize entrapment of animals on job sites, the project biologist will survey the work area at the close daily activities to identify and remediate any potential areas or conditions that might trap animals. Examples of such include pits, trenches or pipes that animals can fall into or perforated pipes or netting that can cause entanglement.

103. Unless otherwise indicated in an Executive Directive issued by the Habitat Agency, for example a directive to address plant pathogens, (103.1) all disturbed soils will be revegetated with native plants, grasses, seed mixtures, or sterile nonnative species suitable for the altered soil conditions upon completion of construction. (103.2) Local watershed native plants will be used if available. If sterile nonnative species are used for temporary erosion control, native seed mixtures must be used in subsequent treatments to provide long-term erosion control and slow colonization by invasive nonnatives. (103.3) All disturbed areas that have been compacted shall be de-compacted prior to planting or seeding. (103.4) Cut-and-fill slopes will be planted with local native or non-invasive plants suitable for the altered soil conditions.

105. Vegetation and debris must be managed in and near culverts and under and near bridges to ensure that entryways remain open and visible to wildlife and that passage through the culvert or bridge remains clear.

107. On streams managed for flood control purposes, when stream reaches require extensive vegetation thinning or removal (e.g., when the channel has been fully occluded by willows or other vegetation), removal will be phased so that some riparian land cover remains and provides some habitat value.

2.E.2 Construction Phases

Sheet Pile Installation

Initially, a series of sheet piles would be installed along the alignment of the proposed levee system, through the middle of the lake using vibratory pile drivers, silent piles, or other similar method. This would allow for the draining of the lake. These activities would occur outside of the normal rainy season, typically between June 1 and October 15. Once the sheet piles are installed, the construction contractor may choose to drain either the western or the eastern portion of the lake first, and conduct the associated activities described below depending on the construction contractor’s organization of the work.

Diverting Alamitos Creek

After the sheet piles are installed and prior to initiation of construction in the western portion of the lake, flow from Alamitos Creek channel would be diverted around the construction area to facilitate earthwork operations. Diversion of water around the work site would be accomplished using a cofferdam and pumps (main pump and backup pump) that would divert water out of the work area and into Alamitos Creek downstream from the lake, near the footbridge and Coleman Road overcrossing of Alamitos Creek.

Draining Almaden Lake and Fish Relocation

Draining Almaden Lake would be accomplished by the installation of sheet piles and the temporary use of portable diesel or electric pumps, which would pump water from the lake into Alamitos Creek downstream of the existing lake. Draining would begin with an initial stage of lake water drawdown.

Once the lake is isolated from the creek and water level is reduced, boat based electrofishing would commence to capture as many fish from the lake as possible. As isolated pools form, additional fish collection could occur using backpack electrofishing, seine, and dip nets to remove fish. Any salmonids captured would be relocated upstream of the lake. If feasible, all other native species would be released either upstream or downstream of the lake. All non-native species would be disposed in a landfill. Prior to draining the western portion Almaden Lake, the inlet and outlet of the lake would be isolated using block nets to avoid any migration of fish into the lake.

Once lake levels are drawn down to the level of the lake bottom, additional groundwater dewatering may be required to maintain water levels below the surface of the lake bottom and enable development of a dry and stable working surface. If required, shallow groundwater wells would be installed, sufficient to draw down groundwater levels to below the surface of the lake bed. Water pumped from these wells would be treated as warranted to remove suspended sediment, and discharged into Alamitos Creek, pending receipt of a discharge permit from the RWQCB.

Portions of the existing lake would similarly be drained as work progresses from one portion of the Project to another. Discharged water would be monitored, consistent with RWQCB permit requirements, on an ongoing basis to ensure sufficient quality for discharge. If required, aerators or similar type devices could be used to circulate and provide oxygen to stagnant waters prior to discharge.

Shallow Sediment Dewatering

Once the lake is drained to the extent possible, it is anticipated that the existing lakebed may be excavated to a minimum depth of 8 inches, and then dried by air to create a stable working surface. However, additional dewatering of shallow lake sediments may be required during construction of the levee foundation and grading of the lake bed. The Project area would be dewatered using sump pumps, well points, and/or installation of temporary drainage management facilities around excavations (Cal Engineering & Geology, 2015).[8] Once captured, dewatered water would be pumped into baker tanks to allow sediments to settle. Following settlement, captured water would be used for on-site dust control and/or be released into the creek in accordance with regulatory requirements.

Working Surface Establishment and Vegetation and Debris Removal

Site preparation would require the establishment of a dry and stable working surface before construction activities begin, as discussed above. Debris, tree roots, and abandoned utilities within the grading area would be cleared and disposed properly. If air drying is not feasible, other methods to dry the work areas would be used, including lime or cement treatment, application of engineered fill material, geogrids, or geotextile fabrics to help stabilize sediments to enable work to proceed. The design and installation of the working surface would be overseen by a geotechnical engineer based on the conditions present at the time of construction, Project constraints, and Project requirements.

All surface vegetation and organic laden soils[9] at a depth determined by a geotechnical engineer at the time of construction would be removed (Cal Engineering & Geology, 2015). All excavated materials would be stockpiled for reuse as fill material in the lake, provided that the soils do not exceed the State threshold for hazardous waste. Excavated soils exceeding the State threshold for hazardous waste would be disposed at an approved hazardous waste disposal site in Kettleman, CA via truck, or in Utah via rail in accordance with regulatory requirements.

Project construction would require the removal of up to 81 trees in the study area, and an additional 54 trees that could be potentially affected (i.e., root disturbance, trimming, etc.) The affected trees would be predominantly near the western perimeter of the lake, the northern outlet of the lake near Coleman Bridge, near the southern transition from the creek to the lake, and in the vicinity of Crossview Circle and Crossview Court. The trees that would potentially be removed range in size from 4 inches in diameter to 48 inches in diameter (SCVWD, 2019).

Excavation and Fill

Excavation activities for the Project include re-contouring the bed of Almaden Lake and Alamitos Creek, preparing the levee foundation, reconfiguring/cutting the existing west bank of Almaden Lake, reconfiguring the shape of the existing island, trenching for inlet pipes south of Almaden Lake Park, and trenching for a pipeline from the lake to the Los Alamitos Percolation Pond. All excavation and shoring activities would meet the California Occupational Safety and Health Standards (Cal Engineering & Geology, 2015). Total cut volume is estimated to be approximately 194,000 cubic yards (SCVWD, 2016b). See **Table 2-2** for cut volume estimates for each Project component.

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[8] Well points are perforated tubes driven into the ground to lower the water table in the surrounding area by pumping (SCVWD, 2015b).

[9] Organic laden soils are defined as soils containing more than 3 percent of organic content by weight.

TABLE 2-2
PROJECT CONSTRUCTION, APPROXIMATE DURATION, CREW SIZE, EQUIPMENT, AND APPROXIMATE CUT AND FILL VOLUMES[a]

Project Element	Sub-Element	Cut Volume (Cubic Yards)	Fill Volume (Cubic Yards)	Estimated Construction Duration[c]	Estimated Construction Crew Size (min)[d]	Estimated Number and Type of Construction Equipment[b]
New Levee & Almaden Lake	Lake Area with 2.5-foot Clay Cap	91,639	241,509	103 days	8	2 Compactors, Grader, water truck
	Levee Foundation Area with 2.5-foot Clay Cap	120	74,455	123 days	8	2 Compactors, Grader, water truck
	Maintenance Access Road Transition	0	1,000	113 days	8	Dual Axis wet soil mixing rig, dozer, soil plant mixing grout slurry Compactors, Grader, water truck
Alamitos Creek	Channel Area with 2.5-foot Clay Cap	1,556	261,283	150 days	8	2 Compactors, Grader, water truck
	Alamitos Creek West Bank Shore Grading	203	9,664	7 days	8	1 Compactor, Grader, water truck,
Islands	Expanded Existing Island	0	10,000	Within Almaden Lake efforts above	Within Almaden Lake efforts above	2 Compactors, Grader, water truck
	New Island	0	40,000	Within Almaden Lake efforts above	Within Almaden Lake efforts above	2 Compactors, Grader, water truck
New Park	Existing Water Area	0	65,493	64 days	5	2 Compactors, Grader, water truck
	Existing Park Land	511	3,072	64 days	5	2 Compactors, Grader, water truck
Transfer Pipeline	From Almaden Valley Pipeline	54,086	50,036	80 days	8	Truck loader, excavator, compactor, butt fusion machine, crane
	To Los Alamitos Percolation Pond	45,884	41,174	80 days	8	Truck loader, excavator, compactor, butt fusion machine, crane
Total		193,999	897,686	784 days	N/A	N/A

[a] Volumes listed above are approximate and will be refined during final design; however, volumes listed represent the maximum that could be expected based on available information.
[b] Additional equipment, including backhoes, dump trucks, excavators, and front end loaders, could be used at times during construction work phases.
[c] The estimated construction durations listed are the approximate number of working days and are subject to change as the Project designs are refined. The construction durations may overlap depending on the construction contractor's organization of the work.
[d] The construction crew size for each activity represents the minimum number of workers that will be onsite for the activity. The crews for each activity may overlap depending on the construction schedule.

SOURCE: SCVWD, 2016b and SCVWD, 2018a

Based on soil test results of 4 samples taken at depths ranging from 3 to 10 feet below the top of sediment within the bed of Almaden Lake and 16 soil samples taken at depths ranging from 0 to 5 feet along the shoreline in December 2015, shoreline soils would have no restrictions with respect to on-site reuse or disposal. Based on testing, some lake bottom sediment could be suitable for on-site reuse for re-contouring Almaden Lake or reconfiguring the channel of Alamitos Creek, or may require disposal offsite at a non-hazardous Class III landfill consistent with California thresholds for hazardous waste classification. However, some lake bottom soil samples exceeded environmental screening levels (ESLs) established by the San Francisco Bay RWQCB (2013), and non-landfill reuse options may be limited (LA&S, 2014; LA&S, 2015). Therefore, all cut material would be stockpiled in the lake body for reuse as fill material in the lake and creek bed. All fill at the lake bottom would be capped by a imported clay layer about 2.5 feet thick, sealing sediments contaminated with mercury at the bottom of the lake and preventing its entry into the food chain. Up to 25,000 cubic yards of soils that exceed California thresholds for hazardous waste may be transported to an approved disposal site in Kettleman, California via truck or Utah via rail (SCVWD, 2015e).

Re-contouring of the Almaden Lake Bed and Levee Foundation Construction

Based on a geotechnical investigation conducted at the lake in fall 2014, the lake has a uniform subsurface condition (SCVWD, 2015b). The depth of lake sediment was estimated to range in thickness from 5 to 10 feet above the alluvium layer (SCVWD, 2016b). After completing excavation within the bed of Almaden Lake consistent with determination made by the Project geotechnical engineer at the time of earthwork activities, all holes and depressions below the design grade and within the proposed lake bed area would be cleared and backfilled with engineered fill, and then adequately compacted. The lake area would then be capped with about 2.5 feet of clay fill, imported from the Stevens Creek Quarry, which would be placed over the remaining sediments.

Once the soft lake sediments are removed from within the footprint of the new levee, eight inches of exposed alluvial soils would also be removed. Alternatively, in coordination with the Project geotechnical engineer, the contractor may use alternative methods, such as cement lime construction, for building the proposed levee, which would avoid the need to remove underlying soft sediments in that area (SCVWD, 2015b). Sediments within the footprint of the proposed levee would be further reinforced through the construction of in-situ soil cement columns. These columns would be drilled into the subsurface then cemented, in order to increase the bearing capacity of the lake bottom materials, and to help minimize levee subsidence. The depth and diameter of the columns would be determined during the engineering/design phase of the Project. In this manner, the alluvial soil underlying the proposed levees would be adequately reinforced to support the compacted engineered levee fill.[10] The new levee would be constructed with a slope no greater than 2H:1V, and protected

[10] The base of the levee foundation would consist of an 8-inch section with moisture content between 1-3 percent above the optimum moisture content, and compacted to no less than 95 percent relative compaction based on ASTM D1557 latest edition. Following preparation of the base layer of the levee foundation, the fill material would be placed in horizontal lifts not exceeding 8-inch in thickness before compaction, moisture conditioned between 1-3 percent above the laboratory optimum moisture content, and mechanically compacted to no less than 92 percent relative compaction. Moisture conditioning of the soils would consist of adding water to the soil if too dry and allowing to dry if too wet (SCVWD, 2015b).

from erosion. Erosion protection would consist of an erosion resistant planting scheme, which would be subject to the approval of a qualified landscape architect.

The proposed levee would be constructed of engineered fill in accordance with the District's standard requirements for levee construction and consistent with the California Building Code. The proposed stream bed would be constructed in a similar manner using similar materials. All fill materials would meet the requirements for Levee Fill Material as specified in the District's Levee Safety Technical Guidance Manual (SCVWD, 2002), and would be sourced from the nearby Stevens Creek Quarry, another District project, or another suitable source within the region. Fill volumes are shown in Table 2-2. After the construction of the proposed levee, the sheet piles would be removed.

Along the proposed levee, the fill is expected to settle during construction; therefore, an additional layer of fill would be applied to compensate for the anticipated settlement. The thickness of the additional fill would be determined based on the results from a settlement monitoring program to determine the rate of settlement. If settlement occurs beyond the duration of construction activities, site grades would be evaluated at 95 percent consolidation and adjusted, if needed. The frequency of monitoring would be based on the rate that fill material application is needed.

Island Construction and New Park Area Construction

The proposed islands would be constructed using a combination of sediment derived from cut areas of the existing island and existing berm near where Alamitos Creek enters into the existing Lake, and as needed, imported fill material. The reconfigured island and proposed new island would be built up to an elevation of approximately 200 msl, similar to the existing island. Banks of the island would be stabilized, and the upper top two feet of soil would consist of low bulk density soil to support planting.

New park area would be constructed in a manner similar to the proposed islands, and would incorporate on-site fill to the extent available, and imported fill if/as needed. New park areas would be filled to a level consistent with the contours and elevation of existing, adjacent park areas. New open park areas would include bank stabilization as appropriate, and would also include installation of two feet of low bulk density surface soil to support planting.

Pipeline and Outlet Structure Construction

A transfer pipeline from the Almaden Valley Pipeline would be constructed along Los Alamitos Creek to deliver water to Almaden Lake. The pipeline would connect to the Almaden Valley Pipeline approximately 0.5 miles south (and upstream) of Almaden Lake, and be generally aligned between the east side of the creek trail and the west side of Crossview Circle/Court. To avoid Los Alamitos Creek Trail and bordering native vegetation, the proposed pipeline would be located on the west edge of Crossview Circle/Court and would then traverse to the east side of the creek trail at the north end of Crossview Court (Figure 2-4). At the outfall at the southern end of Almaden Lake, the discharge elevation would be approximately 185 feet. The pipe would be approximately 2,900 feet long and designed to carry a seasonal flow ranging from 5 cfs to 10 cfs with a diameter of about 16 inches. The pipeline trench would be approximately 5 feet wide and up to approximately 20 feet deep. The trench would be backfilled using reused excavated fill during Project construction, and off-haul/import of fill for pipeline construction would not be expected.

Water from Almaden Lake would be pumped through an approximately 2,000 to 2,600-foot long pipeline with an approximate diameter of 24 inches to Los Alamitos Percolation Pond (Figure 2-5).[11] The pipeline trench for the outlet pipeline would be approximately 5 feet wide and about 20 feet deep. The trench would be backfilled using reused excavated fill during Project construction, and off-haul/import of fill for pipeline construction would not be expected.

Where the pipeline would cross under Coleman Road and Guadalupe Creek, the District would use horizontal directional drilling to install the pipeline beneath the creek. This is a trenchless technique with the bore pits located outside the riparian corridor. The horizontal directional drilling process would be initiated by boring a small, horizontal hole (pilot hole) under Guadalupe Creek with a steel drill rod. When the bore head and rod emerge on the opposite side of the crossing, a special cutter, called a back reamer, would be attached and pulled back through the pilot hole. The back reamer would bore out the pilot hole so that the pipe could be installed (Plastics Pipe Institute, 2009).

Pump Station Construction

The underwater pump located in Almaden Lake (Pump Station A, Figure 2-5) or above-ground pump station located on the northwest corner of Almaden Lake Park parking lot (Pump Station B, Figure 2-5) would be installed.

Native Revegetation and Landscaping

Revegetation would be initiated after the completion of construction and associated clean-up activities as discussed above (Section 2.D.1 – Project Components, Native Vegetation).

In total, the Project would install up to eight acres of locally sourced, native vegetation. In addition, the two acre area near the beach that would be converted to open park area would be planted in coordination with the City of San José Parks Department. Finally, pedestrian paths and maintenance access ramps would be installed, and picnic benches and boat launch facilities would be relocated.

Restoration of Creek Flows and Filling the Lake

Once creek, west bank, and new park area construction and planting are complete, flows would be released back to Alamitos Creek. This would allow winter storm flows to pass through the construction area without damaging or substantially interfering with other construction activities.

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[11] The pipeline alignment options are described under Section 2.D.1, Project Components, Outlet to Los Alamitos Percolation Pond.

Almaden Lake would be refilled when creek construction, lake bottom recontouring, island grading, planting, and pipeline construction are complete.

Installation of SolarBees

Following the lake construction, the existing SolarBees would be reinstalled to continue water circulation improvements in the lake. In addition to the existing four SolarBees currently being used, the Project would install three additional SolarBee devices to further improve water circulation. Overall, a total of seven SolarBee devices would operate in the lake water body.

2.E.3 Summary of Construction Equipment/Crews/Duration

The following is a summary of the construction equipment that could be used during construction of the Project:

- Backhoes
- Compactors
- Dozers
- Crane
- Dump trucks
- Excavators
- Front end loaders
- Floating barge
- Motor graders
- Loader scrapers
- Water trucks
- Wet Soil mixing rig
- Vibratory pile driver

The type of construction activity would dictate the number of workers required and the duration of activities. Based upon Project phasing, 48 workers would be the maximum number of daily construction workers at the Project site, assuming that some construction workers would work in multiple construction phases performing various construction tasks.

Construction activities are anticipated to span from approximately June 2021 to December 2023. Table 2-2 summarizes each construction activity, as well as estimated timeframes, crew size, and equipment requirements for the Project, by activity. Construction activities would typically occur between the hours of 7 am and 7 pm, Monday through Friday. With written approval from the City of San José, construction activities could also occur on Saturdays from 8 am to 5 pm. However, no work would occur on Sundays and holidays, except under special or emergency cases approved by the District and City.

Should the District determine, during Project design and construction planning, that obtainment of sufficient clean fill would be difficult during the defined construction period above, the District would consider reordering the progression of construction activities such that following installation of sheet piles to section of the eastern portion of the lake and dewatering of that area; the area would be used to stockpile fill material until sufficient material is available to begin the remaining construction activities. Alamitos Creek would not be diverted and would comingle with the western portion of the lake until the remaining construction activities commence. It is expected that this approach could extend the construction period up to approximately 18 months.

Construction and Demolition Waste

As noted in the discussion of lake excavation and fill, up to 25,000 cubic yards of soils that exceed California thresholds for hazardous waste may be transported to an approved disposal site in Kettleman, California or Utah (SCVWD, 2015e). In addition, the Project would generate limited construction and demolition general waste. Over the construction period, it is anticipated that area landfill(s) would receive up to 500 cubic yards of general construction and demolition materials, which would include primarily concrete.

Timing of Construction

Based on the acquisition time for permits and available funding sources, the proposed construction activities could start as early as summer 2021, with an approximate duration of 30 months. The Project team anticipates that construction of the levee, lake reconfiguration, and island related construction would occur during the first year of construction. Construction of the creek, west bank park area, and outlet structure, and revegetation would occur in the second year. Pipeline construction could occur in either the first or second year of construction. The actual staging of construction would be determined in coordination with the contractor selected to build the project.

2.E.4 Staging Areas and Access

Construction staging areas include Almaden Lake, the southwestern lawn area of Almaden Lake Park, the vacant property owned by the City of San José also known as the Sycamore Terrace property, and the District's Winfield Warehouse (Figure 2-2). The bed of Almaden Lake would contain construction access and staging areas. As construction activities progress, lakebed staging areas would be relocated within the bed of the lake as different areas of the Project site need to be accessed. Outside of the lake bed, other potential staging areas include the southwestern lawn area of Almaden Lake Park, the Sycamore Terrace property located at the northeast corner of Almaden Expressway and Coleman Road, and paved areas (parking, storage areas) at the District's Winfield Warehouse, located to the north of Coleman Road, along Winfield Boulevard. Use of the Sycamore Terrace property for staging would be coordinated with the City of San José.

Construction ingress and egress would be from two established Almaden Lake Park entrances and exits on Winfield Boulevard and Almaden Expressway (Figure 2-2), and would be coordinated with the City of San José. The construction contractor would use stabilized construction roads to access the Almaden Lake Park entrances as needed. Additional access to the site would be from immediately downstream of the Coleman Road Bridge at the Guadalupe River East Bank Trail by the Santa Clara Valley Transportation Authority Almaden Light Rail Station (Figure 2-2). This access point could serve as a construction ingress and egress location, as well as a haul route location for fill material. Worker and equipment parking would be provided along Winfield Boulevard and on adjacent streets to the Park. Proposed haul routes would include Coleman Road, Winfield Boulevard, Almaden Expressway, Santa Teresa Boulevard, and California State Route 87 (Guadalupe Freeway).[12]

[12] No commercial vehicles are allowed on California State Route 85 (SCVWD, 2015b).

Temporary construction fencing would be installed along the perimeter of the work area in order to restrict access to the construction area. Construction fencing would surround the anticipated disturbance area, from the southern end of Alamitos Creek, running south along the proposed western bank of Alamitos Creek, south to the construction access point at Winfield Boulevard, and around the remaining lake areas.

2.E.5 Stormwater Management

Project construction would be managed so as to maintain capacity to manage storm flows in the event that a major storm event were to occur during the construction period. Following draining of the lake, the construction contractor would be responsible for implementing all BMPs for stormwater pollution prevention and control applicable to Project construction and stormwater flows originating from the Project site in compliance with the California Stormwater Construction General Permit and applicable Project discharge permits. The stormwater BMPs would be applied in accordance with the most up to date version of California Stormwater Quality Association’s “Construction Best Management Practice Handbook.”

2.F Maintenance

2.F.1 Long-Term Monitoring and Maintenance Activities

Existing and ongoing maintenance activities at Almaden Lake include island vegetation management and water quality sampling, testing, and annual reporting. These maintenance activities would continue under the proposed Project. Additional maintenance activities would also be required to support the proposed features. The City of San José would be responsible for maintenance of the new open park area, while anticipated maintenance activities for the District would include embankment and levee inspection and repair, levee settlement adjustment, restored vegetation maintenance and management along the restored creek and islands, lake water quality monitoring, and maintenance road grading and upkeep. Most activities would be implemented regularly to maintain the Project facilities at design conditions, as described below.

Routinely performed vegetation management activities would include:

- ***Levee*****:** The District would prevent vegetation growth along the top of levee maintenance roads via pre and post emergent herbicide application and hand weed abatement, tree removal, and mowing along levee embankments for fuel load management.
- ***Natural and Low Flow Channel:*** The District would monitor natural and low flow channels for hazardous tree conditions, channel blockages, and other conditions that would impede flow or create local drainage problems.
- ***Restored Native Vegetation:*** The District would monitor Project planting areas (along the creek, floodplain, lake, and islands) to determine the need for any maintenance or remedial actions, such as replacement plantings, substitute species, weeding, and/or non-native plant treatment. Monitoring and maintenance of the new park area would be conducted in coordination with the City of San José Parks Department.

Ongoing management of established lake vegetation would include mowing, pruning, and weeding. Maintenance would occur annually during the summer months.

Ongoing management of established island vegetation would include hand weed abatement and herbicide activities to control invasive plants. Inspection and maintenance of island vegetation would be consistent with standard District vegetation maintenance practices.

In limited cases, herbicides or algaecides may be used for vegetation management, consistent with the District's Best Management Practices Handbook BMPs (SCVWD, 2014a) and Stream Maintenance Program Manual BMPs (SCVWD, 2014b).

Structural maintenance activities would include:

- ***Levee:*** The District would monitor levee top and slopes for erosion damage, and would repair as needed. In addition, the levee top would be monitored annually for settlement. If the measured elevation differs from the design grade elevation by more than one foot, the District would take corrective action.

- ***Road and Trail Maintenance:*** An aggregate road base would be applied to the top of the new levee that would be self-maintained. The trail located within the new park area would be maintained by the City.

- ***Creek Channel*****:** Consistent with the District's Stream Maintenance Program (SMP), the District would repair any erosion along the banks of the proposed Alamitos Creek channel. In addition, the District would monitor sediment deposition in the creek channel, and would conduct maintenance on any erosion damage, structural damage, or sediment depths greater than one foot on average outside of design conditions. Sediment removal or erosion repair could require a variety of heavy equipment, as well as a temporary cofferdam if flows must bypass the maintenance site. The District anticipates sediment removal of about 5,000 cubic yards from the proposed Alamitos Creek section approximately every 10 years (SCVWD, 2015b). These maintenance activities would be carried out consistent with the SMP as part of the Project. The Alamitos Creek channel maintenance activities would be incorporated in the next SMP update, after which creek channel maintenance would be considered to be part of the SMP. Excavated sediment would be reused on site where feasible, or would be disposed of at a landfill or other suitable site, in accordance with applicable disposal requirements.

  The City would visually inspect exposed and accessible creek channel walls on a monthly basis and remove any graffiti.

- ***Lake:*** Almaden Lake water quality would continue to be monitored monthly to bi-monthly by District staff for mercury and methylmercury concentrations. Other maintenance activities associated with Almaden Lake would include maintenance of the SolarBees. The City would continue to collect litter and perform graffiti abatement around the perimeter of the lake.

Vegetation management, trash and debris removal, and graffiti abatement within the Park, including the new Park elements, would continue to be the responsibility of the City.

2.G Intended Uses of the EIR and Required Permits and Approvals

The information contained in the EIR and the administrative record will be reviewed and considered by the District Board of Directors prior to the ultimate decision to approve, disapprove, or modify the Project.

Agencies expected to use this EIR in their decision making for permits required for implementation of the Project are listed in **Table 2-3** along with the likely permits and approvals necessary. This EIR presents environmental reviews that will support these agencies' permitting and approval processes.

TABLE 2-3
ANTICIPATED PERMITS AND APPROVALS

Anticipated Permit or Approval	Agency
Federal	
Clean Water Act Section 404 permit	U.S. Army Corps of Engineers
Endangered Species Act Section 7 Consultation	National Marine Fisheries Service (NMFS)
Endangered Species Act Section 7 Consultation	U.S. Fish and Wildlife Service (USFWS)
State	
Section 1602 Lake and Streambed Alteration Agreement California Endangered Species Act authorization	California Department of Fish and Wildlife (CDFW)
Transportation Permit	California Department of Transportation (Caltrans)
Clean Water Act Section 401 Water Quality Certification of Section 404 Permit Porter-Cologne Water Quality Control Act Waste Discharge Requirements Construction General Permit coverage	San Francisco Bay Regional Water Quality Control Board
Local	
Project Approval	Santa Clara Valley Water District
Permanent Easement and Encroachment Permit, Approval of Traffic Control Plans	City of San José
Santa Clara Valley Habitat Conservation Plan & Natural Communities Conservation Plan (HCP/NCCP) Compliance	Santa Clara Valley Habitat Agency
Grading Permit, approval of traffic control plans	County of Santa Clara

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CHAPTER 3
Environmental Setting, Impacts, and Mitigation Measures

Introduction to Analysis

Scope of the EIR

Chapter 3, Environmental Setting, Impacts, and Mitigation Measures, presents the environmental and regulator setting, impacts, and mitigation measures for the technical issue areas applicable to the Almaden Lake Improvement Project (Project). The environmental analysis provided is organized according to applicable California Environmental Quality Act (CEQA) resource area. Sections 3.A through 3.P present the following resource areas addressed in this Environmental Impact Report (EIR):

- 3.A Aesthetics
- 3.B Agriculture and Forest Resources
- 3.C Air Quality
- 3.D Biological Resources
- 3.E Fisheries Resources
- 3.F Cultural Resources and Tribal Cultural Resources
- 3.G Energy
- 3.H Geology and Soils
- 3.I Greenhouse Gas Emissions
- 3.J Hazards and Hazardous Materials
- 3.K Hydrology and Water Quality
- 3.L Noise
- 3.M Public Services
- 3.N Recreation
- 3.O Transportation
- 3.P Utilities and Service Systems

Section Format

Each section contains, as relevant: (1) identification of the technical issue areas being evaluated in the section; (2) environmental and regulatory setting; (3) standards of significance; (4) method of analysis; (5) Santa Clara Valley Water District (District) best management practices, as applicable (6) assessment of Project impacts; and (7) recommended mitigation measures that reduce or avoid significant impacts, as applicable.

The environmental and regulatory setting discussion presented in each of the resource area sections summarizes the conditions that exist prior to implementation of the Project, and provides a point of reference (or baseline) for assessing the environmental impacts of the proposed Project. Each impact and mitigation measure discussion includes an impact statement (in bold text), an explanation of the impact (as it relates to the Project), an analysis of the significance of the impact, identification of relevant mitigation measures if applicable, and an evaluation of whether the identified mitigation measures would reduce the magnitude of identified impacts. Each impact statement is assigned a number based on the section and the order they appear (for example, 3.A-1, 3.A-2, etc.). Mitigation measures for each impact are numbered in order (for example 3.A-1, 3.A-2, etc.).

Significance Determinations

The significance criteria used in this EIR are based on the CEQA Guidelines Appendix G, with some modifications. The significance criteria used to analyze each environmental resource topic are presented in each section of Chapter 3 before the discussion of impacts. The categories used to designate impact significance are described below:

- **No Impact (NI).** A project is considered to have no impact if there is no potential for impacts, or if the environmental resource does not exist within the project area or the area of potential effect. For example, there would be no impacts related to wastewater disposal if the Project would not involve the production of wastewater.
- **Less than Significant (LS).** This determination applies if there is a potential for some limited impact, but not a substantial adverse effect that qualifies under the significance criteria as a significant impact. No mitigation is required for impacts determined to be LS.
- **Less than Significant with Mitigation (LSM).** This determination applies to impacts that either could be or are significant and likely to occur, but for which feasible mitigation is available to reduce the impacts to a less than significant level. Some of the determinations are conservative in that there is no known information suggesting a definite significant impact, but for the purpose of this EIR, those impacts are conservatively treated as significant and mitigation measures are proposed to reduce those impacts to less than significant.
- **Significant, Unavoidable (SU).** This determination applies to impacts that either could be or are significant but for which no feasible mitigation has been identified reduce the impacts to a less than significant level. There might be some mitigation available to lessen the impact, but the residual effect remains significant and therefore the impact is considered unavoidable.

In determining the significance of a project impact, the analysis first describes the nature, frequency, magnitude, and/or severity of a potential effect and then determines whether it is significant, or less than significant, or that no impact would occur, based on the appropriate significance criteria.

The District developed, and regularly updates, the Santa Clara Valley Water District Best Management Practices Handbook (SCVWD, 2014) which provides a comprehensive list of District best management practices (BMPs) that are consistently applied to design, development, and implementation of District projects with the purpose of minimizing or avoiding adverse environmental effects. The individual BMPs are organized into environmental categories consistent with the CEQA Environmental Checklist Form (CEQA Guidelines, Appendix G). BMPs that apply to specific environmental impacts will be included in the Project, and are incorporated into the impact analyses prior to determining significance level and the need for mitigation.

Within each section in this chapter, a summary table is provided at the beginning of the impact discussion to summarize the potential impacts and indicate the level of impact significance. A summary table is also provided at the beginning of the impact discussion to summarize applicable mitigation measures.

Effects not Found to be Significant

According to CEQA Guidelines Section 15128, effects not found to be significant do not need to be discussed in detail in an EIR. Where one or more significance criteria were found to be not applicable or to have no impact, they are discussed in the approach to analysis section for each resource topic. However, in the course of this evaluation, the District determined that the Project would have no impact on some resource sections in their entirety, including land use and planning, mineral resources, population and housing, tribal cultural resources, and wildfire. These resource topics and explanations for why there would be no impacts are discussed below.

Land Use and Planning

The Project would not physically divide an established community or cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect. The proposed Project construction activities would not cause an environmental impact due to a conflict with the applicable principles and policies in the *Envision San José 2040 General Plan*. Project construction would not result in environmental impacts due to land use conflicts with the principles and policies in the General Plan or with any other land use plan, policy, or regulation related to environmental effects. The Project would not change existing land uses to alternate land uses, and therefore would not require or result in a change in land use or zoning designation. Therefore, **no impact** would occur with respect to land use conflicts that could result in environmental impacts.

In general, future use of the Project area would be similar to current uses and would be located within recreation areas and not within an established community. The Project would include the continuation of existing and ongoing maintenance activities at Almaden Lake as well as new activities such as routine vegetation management and maintenance road grading and upkeep. These activities would not cause an environmental impact due to a land use conflict with the principles and policies in the *Envision San José 2040 General Plan*. Project operations would not result in land use conflicts with the principles and policies in the General Plan or with any other land use plan, policy, or regulation related to environmental effects. Project operations would not alter existing land use within or surrounding the Project site, and therefore would not conflict with or require updating of existing zoning or land use designations applicable to the Project area or its vicinity. Therefore, **no impact** would occur related to land use conflicts that would result in environmental impacts.

Mineral Resources

The Project would not result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state or 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. In spite of its historic use as a quarry, the Project would not be located within a significant mineral, oil, or gas resources area (San José, 2011; DOGGR, 2016). Furthermore, local land use plans do not indicate presence of locally important mineral resources on the Project site. Therefore, the Project would not result in the loss of availability of a known mineral resource, nor would result in the loss of a locally-important mineral resource recovery site. The Project would have **no impact** related to mineral resources.

Population and Housing

The project would not induce substantial unplanned population growth in the area, either directly (for example by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure) or displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere.

During the Project construction period, up to 48 construction workers would be working at the Project site at any given time, depending on the phase of construction and the construction activities underway (see Table 2-2 in Chapter 2, Project Description). It is expected that construction workers would be supplied from the San Francisco Bay Area employment pool. While it is possible that some workers might temporarily relocate from other areas, the small increase potentially attributable to Project construction would not result in a substantial increase in the local population and would not create an increase in demand for services in the area.

The Project would not include new homes or businesses, nor would it permanently increase the capacity of the recreational facilities and opportunities at Almaden Lake Park (Park) in a way that would induce unplanned population growth. The Project is not intended to increase population growth over current trends. Additionally, the pipeline connection between Almaden Valley Pipeline, Almaden Lake, and the Los Alamitos Percolation Pond would be intended to facilitate the handling of an existing water supply, and would not be anticipated to cause a condition that would induce population growth. Therefore, the Project would have no impact as a result of unplanned population growth.

The construction and future use of the Project components would not require the displacement of existing people or housing. Construction would occur within the existing boundaries of the Park and proposed pipeline corridors connecting Almaden Lake to Almaden Valley Pipeline (upstream) and Los Alamitos Percolation Pond (downstream) with staging occurring within the Park and on existing District property immediately to the north on Winfield Boulevard. Installation and operation of the pipeline connection between Almaden Valley Pipeline, Almaden Lake, and Los Alamitos Percolation Pond would be within existing streets and trails, within the Park, or on District property. It would not encroach upon existing or future populated areas or residential developments. Therefore, the Project would have **no impact** from displacing existing people or housing.

Wildfire

The Project is not located in or near state responsibility areas or lands classified as very high fire hazard severity zones. Both the State of California and Santa Clara County map Fire Hazard Severity Zones (FHSZs) within the County. The FHSZs are based on an evaluation of fire history, existing and potential fuel, flame length, blowing embers, terrain, weather, and the likelihood of buildings igniting (California Department of Forestry and Fire Protection [CalFire], 2016). According to CalFire, the Project site is located in an area designated as a non-very high fire hazard severity zone; and no areas of very high fire hazard severity are near the Project site (CalFire, 2008). Further, the Project site is not in an area of slope, prevailing winds, or areas subject to exacerbated wildfire risks or post-fire slope instability. Thus, the Project would have **no impact** associated with potential wildfire effects on areas of very high fire hazard severity. Further, the District BMPs include Fire Prevention measures (HM-12) that would reduce the potential for any catastrophic fire to occur as a result of Project construction and operational activities.

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3.A Aesthetics

This section describes the environmental and regulatory setting of the Project site and surrounding area with respect to aesthetics and visual resources, and includes an analysis of impacts to those resources from the Project. For the purpose of this assessment, visual resources are generally defined as the natural and built features of the landscape that contribute to the public's experience and appreciation of the environment. If needed, District best management practices (BMPs) and mitigation measures to avoid or reduce significant impacts are also identified.

3.A.1 Environmental Setting

To assist the reader in understanding the geographic context at and around the Project site, the following distinctions are offered:

- The Guadalupe River is formed by the confluence of Alamitos Creek from the south (i.e., Almaden Lake) and Guadalupe Creek from the west. This confluence is immediately north of Coleman Road.
- The southern terminus of the Guadalupe River Trail is at the intersection of Almaden Expressway and Coleman Road, opposite the northwest corner of Almaden Lake Park. From this point, the trail travels north away from the Park along the east side of the Guadalupe River.
- The eastern terminus of the Guadalupe Creek Trail is approximately 0.25-mile north of Almaden Lake Park on Almaden Expressway at Chris Hotts Park. This trail travels west away from the general vicinity of the Park along the north side of Guadalupe Creek.
- The northern terminus of the Almaden Lake Trail is at its intersection with the Guadalupe River Trail immediately north of Coleman Road. From the north shore of Almaden Lake, this trail travels north under the Coleman Road and Guadalupe River Trail bridges to this intersection. Within the Park (i.e., south of Coleman Road), the trail encompasses Almaden Lake. South of the Almaden Lake Park, the Almaden Lake Trail is linked to the Los Alamitos Creek Trail.

Regional Setting

The Project is situated in the southern San Francisco Bay area in central Santa Clara County. The site lies within the southern portion of the City of San José, largely characterized by residential neighborhoods, parks and trails, a golf course, a school with athletic fields, and public utility water retention ponds. The sprawling City of San José itself is the major urban center in the Santa Clara Valley.

The Santa Clara Valley is situated between the Santa Cruz Mountains to the west and the Diablo Range to the east. Views of the Diablo Range, situated approximately 6 miles east, are available from locations on the west shore of Almaden Lake. Nearby peaks of the Santa Cruz Mountains, located approximately 2 miles west, appear prominently in views from the north and east shores of the lake. Lands to the north of the Project are fairly flat; however, several smaller hills and knolls rise to the south and west of the lake, including the Santa

Teresa Hills. With the exception of a knoll located in its southwest portion, topography within the 65-acre Almaden Lake Park is relatively flat. Water levels in Almaden Lake are generally 190 feet above sea level, approximately 10 to 15 feet below the surrounding roads and trails.

Almaden Lake Park is bounded by public roadways, including Coleman Road to the north, Winfield Boulevard to the east and south, and Almaden Expressway, a Santa Clara County scenic roadway, to the west. North of Coleman Road, the Almaden Lake trail links to the Guadalupe River Trail, which continues north along the Guadalupe River. The Almaden Lake Trail enters the Park at the Coleman Road bridge and continues along the north shoreline to encompass the lake.

Figure 3.A-1 shows the Park and surrounding area and points from which representative photos were taken. Photos 1 through 10 in **Figure 3.A-2** show views in the area surrounding the Park.

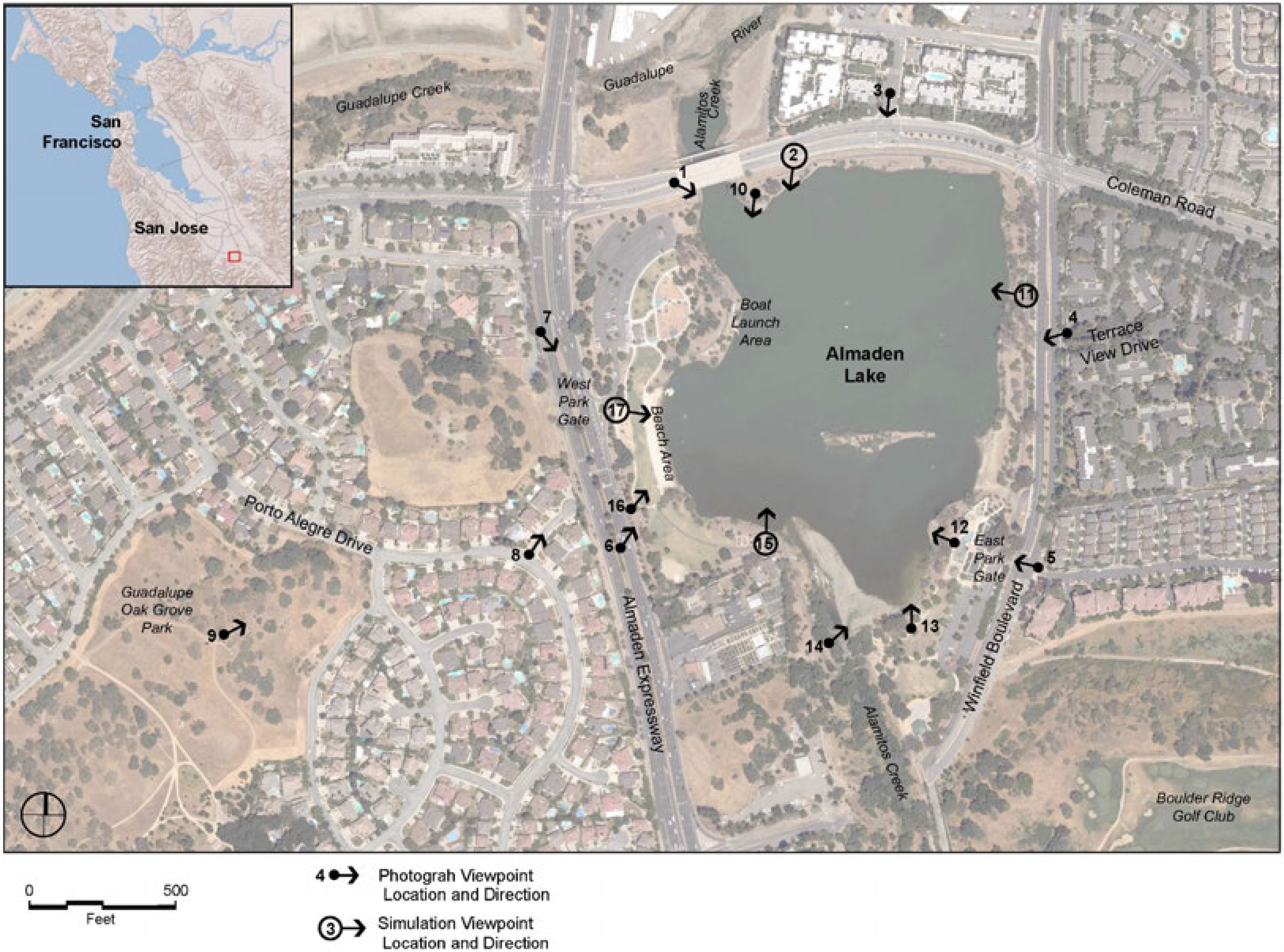
Project Site

The Project area is an urban landscape comprised of a mixture of land uses that include public open space, private recreation areas, and residential neighborhoods. Along Coleman Road and Winfield Boulevard, multifamily residential developments face the lake, and an apartment building with residences for seniors lies at the northwest corner of Coleman Road and Almaden Expressway. To the west, across Almaden Expressway, single-family residences are setback and separated from the roadway by a sound wall. To the south, single-family residential neighborhoods are located on either side of the Los Alamitos Creek Trail corridor, and the 300-acre Boulder Ridge Golf Club is located southeast of the Project area. Small scale commercial developments occupy an area to the southwest, adjacent to Almaden Lake Park. Located approximately 0.25 mile to the west, Guadalupe Oak Grove Park is an approximately 62-acre City park with recreation facilities and open space, encompassing two small hills from which the Project site may be viewed (Photo 9).

The visual character within Almaden Lake Park includes naturalistic landscaped areas near the water, as well as developed recreation facilities. Photos 1 through 9 of Figure 3.A-2 present viewpoints from various locations outside of Almaden Lake Park while Photos 10 through 17 present views of various view points within the Park.

The paved multi-use trails, which comprise the Almaden Lake Trail, surround the lake and connect to the Los Alamitos Creek Trail to the south and Guadalupe River Trail to the north. Two parking areas, one on the east and one on the west side of the lake, are the focus for more developed activities. The western area includes a beach formerly used for swimming, bathrooms, a snack bar, a boat launch area, a tot lot, a lifeguard building, and a volleyball court. The eastern area includes restrooms, an amphitheater, tot lot, and a bocce ball court. Developed picnic areas, many including shade trellises, can be found throughout the Park.

Vegetation within the Park is comprised of a variety of mature trees planted in naturalistic groupings, lawn areas, and riparian vegetation along the edge of Alamitos Creek at the north and south ends of the lake. To the east and west of the Park, mature trees line public roadways and, to the north, street trees have been recently planted along Coleman Road.



SOURCE: Environmental Vision

Almaden Lake Improvement Project . 130679

Figure 3.A-1
Project and Photograph Viewpoint Locations

1

Eastbound on the Coleman Road bridge over Alamitos Creek looking southeast.
Proposed levee, new island, and expanded island would be seen beyond existing guard rail.

2

*Coleman Road looking southwest from east of Alamitos Creek.
Restored Alamitos Creek channel would be visible beyond the northern end of the proposed levee. Tree in right foreground could be removed, and the proposed expanded park area would be visible, on the far bank, in the distance.

3

Almaden Lake Village at Coleman Road looking south.
Almaden Lake is partially visible beyond park perimeter fence.

***Simulation viewpoint**
Refer to Figure 3.A-1 for viewpoint locations

SOURCE: Environmental Vision

Almaden Lake Improvement Project . 130679
Figure 3.A-2
Site Views

4

Terrace View Drive at Winfield Boulevard looking west.
Almaden Lake is barely visible beyond park perimeter fence.

5

Winfield Boulevard looking west towards east entrance of Almaden Lake Park.
Almaden Lake is not visible due to vegetation screening.

SOURCE: Environmental Vision

Almaden Lake Improvement Project . 130679

Figure 3.A-2
Site Views

6

Northbound Almaden Expressway looking northeast.
Proposed expanded park area would be visible near the center of this view, with the proposed levee beyond.

7

Southbound Almaden Expressway near the west entrance of Almaden Lake Park looking southeast.
Almaden Lake is barely visible beyond roadway signs and park perimeter fence.

Refer to Figure 3.A-1 for viewpoint locations

SOURCE: Environmental Vision

Almaden Lake Improvement Project . 130679

Figure 3.A-2
Site Views

8

Porto Alegre Court
looking east.
Almaden Lake is screened by a wall and vegetation and therefore is not visible.

9

Guadalupe Oak Grove
Park looking east.
Almaden Lake is visible near the center of this view, although partially screened by intervening vegetation.

Refer to Figure 3.A-1 for viewpoint locations

SOURCE: Environmental Vision

Almaden Lake Improvement Project . 130679

Figure 3.A-2
Site Views

10

Almaden Lake Trail near pedestrian entrance gate from Guadalupe River Trail link looking south.
Restored Alamitos Creek channel would be seen near the right side of this view, and on the left a portion of the proposed levee. The existing boat launch area, including the blue building on the right would be removed.

11

*Almaden Lake Trail from the east side of the lake looking northwest toward Coleman Road.
The northern end of the proposed levee would be near the center of this view, on the right side of the existing Coleman Road bridge. The new island would also be visible.

***Simulation viewpoint**
Refer to Figure 3.A-1 for viewpoint locations

SOURCE: Environmental Vision

Almaden Lake Improvement Project . 130679
Figure 3.A-2
Site Views

12

Almaden Lake Trail near the amphitheater on the southeast side of the lake looking west toward the beach area.
View from near new potential boat launch area at the southern end of the proposed levee; proposed expanded park area would also be visible in the distance, beyond the levee.

13

Looking north, toward Coleman Road, from the South Point Picnic Area.
The new levee with new maintenance road and trail would be prominent in the foreground. The expanded island would be seen in the background of the view and portions of the new island may be visible beyond, toward the north shoreline.

Refer to Figure 3.A-1 for viewpoint locations

SOURCE: Environmental Vision

Almaden Lake Improvement Project . 130679

Figure 3.A-2
Site Views

14

Near Trail on southwest side of lake looking northeast. *Portions of the restored Alamitos Creek channel would appear in the foreground and southern end of the proposed levee, including the new potential boat launch area, would be on the right, along the far shore.*

15

*Almaden Lake Trail on southwest side of lake looking north toward Coleman Road Bridge. *The proposed expanded park area would appear on left and the restored Alamitos Creek channel would be seen on the right. The existing boat launch area, including the blue building, partially screened by vegetation, on the right would be removed.*

16

Ohlone Picnic area on west side of lake looking northeast. Proposed *expanded park area would increase the size of the lawn in the foreground. The existing boat launch area, seen near the center of the view, would be removed and proposed levee would be visible beyond.*

***Simulation viewpoint**
Refer to Figure 3.A-1 for viewpoint locations

SOURCE: Environmental Vision

Almaden Lake Improvement Project . 130679

Figure 3.A-2
Site Views

17

*Lawn area near West Entrance Station looking east. *The proposed expanded park area would be seen in the foreground, and the proposed levee would be visible beyond.*

***Simulation viewpoint**
Refer to Figure 3.A-1 for viewpoint locations

SOURCE: Environmental Vision

Almaden Lake Improvement Project . 130679

Figure 3.A-2
Site Views

As noted above, Figure 3.A-1 shows the Park, the surrounding area, and points from which representative photos were taken. These photos are presented in Figure 3.A-2. Photos 1 and 2 present existing views from Coleman Road. Street tree and median planting along Coleman Road are relatively new and, therefore, provide limited screening of views toward the Park at this time. From the sidewalk on the south side of Coleman Road, eastbound lanes, and Almaden Lake Trail, open views across the lake are available, while from locations further from the Park edge, including from the Almaden Lake Village residential area to the east (Photo 3), views are substantially screened by vegetation and topography. The views from the north include the Santa Cruz Mountains and the Santa Teresa Hills in the background.

Photos 4 and 5, taken from or near Winfield Boulevard represent residential and roadway views from east of the Park. As seen from this area, mature trees along the road and in the Park generally screen views of the lake and opposite shore. Photo 4 shows that the lake may be visible from some locations along Winfield Boulevard, including nearby residential areas, although the views are partially screened by street and park trees and the Park's perimeter fence. Photo 5, at the east Park entrance, shows that a combination of vegetation and Park structures screen views of the water.

Photos 6 and 7 present views from Almaden Expressway. The Park and lake are evident in Photo 6 from the northbound lanes of the expressway. Photo 7 is a southbound view from the expressway along the west side of the Park. While the Park's fence and some of the grounds are visible from the southbound direction, they are not clearly discernable through the intervening median vegetation. The posted speed limit on this section of Almaden Expressway is 50 miles per hour (mph), which is a determining factor that acts to reduce viewing opportunities.

From the residential streets located west of Almaden Expressway, a sound wall along the west side of the roadway screens most ground-level views of the Park and lake. Photo 8 is a view from Porto Alegre Court, a cul-de-sac in this single-family-home residential area. The photo demonstrates that the sound wall and mature vegetation block views toward the Park and the lake from this location.

Photo 9 in Figure 3.A-2 is a hilltop view from Guadalupe Oak Grove Park, located approximately 0.25 mile west of the Project site. Although the lake is not visible from much of the Park, a steep dirt trail leads to an elevated viewpoint providing panoramic views of the Santa Clara Valley, the Diablo Range, and the Santa Cruz Mountains. The view includes a portion of Almaden Lake in the middle ground, partially screened by intervening trees.

The area near Almaden Expressway north of the Project site includes the District's main office/maintenance facility, the Los Alamitos Percolation Pond, and the Guadalupe River corridor. This corridor includes the river, its levees, a maintenance road on the west levee, and the Guadalupe River Trail on the east levee. A single-family residential neighborhood is located to the west of Almaden Expressway, with large-scale commercial development to the north and east of the District property along Blossom Hill Road and Winfield Boulevard, respectively. Additionally, the Santa Clara Valley Transportation Authority (VTA) Almaden light rail transit (LRT) station and parking is located immediately east of the percolation pond and river.

The Project's staging area would be located at the District's Winfield Warehouse. In close proximity to the Park, this facility is located approximately 0.2-mile north of the north edge of the Park on the west side of Winfield Boulevard. It is surrounded by multi-family and single-family neighborhoods to the south and east, commercial uses to the north, and the VTA Almaden LRT station to the west. There are publicly-accessible views of this facility from the east, south, and west. Slatted security fencing landscaped with a variety of trees, ivy, and shrubbery faces Winfield Boulevard and residences to the east. A textured concrete wall landscaped with ivy and shrubbery faces the Coleman Road VTA station access and multi-family residences to the south. To the west, the larger warehouse building abuts to the property and is visible from the VTA Almaden LRT station. The remainder of the west side of the facility, which is lined with slatted chain link fencing, is visible from the Guadalupe River Trail. Structures on the parcel north of the facility block any publicly-accessible views from that vantage point.

Daytime sources of glare in the vicinity of the Project site include reflections off light-colored surfaces, windows, vehicles, and the lake surface. The primary sources of night-time light and glare in the vicinity include street lighting, vehicular head lights, security lighting, and external lighting in residential areas. Permanent lighting sources on the Project site include parking lot and security lighting.

3.A.2 Regulatory Setting

The Project lies within the City of San José in Santa Clara County. Applicable policies for these two jurisdictions, as well as the state of California, are presented below as they identify designated scenic resources in the Project area.

Federal Regulations

There are no federal plans, policies, regulations, or laws related to aesthetics or visual resources applicable to this Project.

State Regulations

California Scenic Highway Program

The California's Scenic Highways Program, described in the State Streets and Highways Code, was established by the Legislature in 1963 to preserve and enhance California's natural beauty. The State Scenic Highway System includes highways that either are eligible for designation as scenic highways or have been designated as such. The status of a state scenic highway changes from eligible to officially designated when the local jurisdiction adopts a scenic corridor protection program, applies to the California Department of Transportation (Caltrans) for scenic highway approval, and receives the designation from Caltrans (Caltrans, 2017).

The nearest designated State Scenic Highway, State Route 9 (SR-9), is approximately 4.5 miles to the west. An eligible State Scenic Highway, SR-17, also lies 4.5 miles to the west.

Local Regulations

Santa Clara County General Plan

The Regional Parks and Scenic Highways Map Element of the *Santa Clara County General Plan* (updated 2008) identifies county scenic freeways, expressways, arterial, and rural routes, including both Almaden Expressway and Guadalupe Creek Trail west of Almaden Expressway, which are near the Project site.

Policies regarding scenic roads in the county include regulating signage, requiring setbacks for new structures, and controlling land use along the road in order to assure the scenic qualities of the corridors.

Envision San José 2040 General Plan

The *Envision San José 2040 General Plan* (2011) contains general goals regarding visual resources. These goals and complementary policies and actions primarily concern access to scenic resources (Goal CD-9) and maintaining attractive gateways within the City (Goal CD-10), particularly along loosely-defined "Grand Boulevards" and "Rural Scenic Corridors." By definition, Almaden Expressway and Coleman Road may be considered "Grand Boulevards." The General Plan also identifies or designates a number of scenic corridors within the City, although none are located near the Project site.

3.A.3 Impacts and Mitigation Measures

Significance Criteria

Implementation of the Project would have a significant impact on visual resources if, except as provided in Public Resources Code Section 21099, it were to:

- Have a substantial adverse effect on a scenic vista;
- Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway or other designated corridor;
- In non-urbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings.[1] If the project is in an urbanized area,[2] would the project conflict with applicable zoning and other regulations governing scenic quality; and

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1 Public views are those that are experienced from publicly accessible vantage points.

2 CEQA Guidelines Section 15387 defines 'urbanized central city or a group of contiguous cities with a population of 50,000 or more, together with adjacent densely populated areas having a population density of at least 1,000 persons per square mile. A Lead Agency shall determine whether a particular area meets the criteria in this section either by examining the area or by referring to a map prepared by the U.S. Bureau of the Census which designates the area as urbanized. Maps of the designated urbanized areas can be found in the California EIR Monitor of February 7, 1979…. Use of the term "urbanized area" in Section 15182 is limited to areas mapped and designated as urbanized by the U.S. Bureau of the Census.

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

Approach to Analysis

Visual Quality

The City of San José is considered an urbanized area, as defined in CEQA Guidelines Section 15387, and as mapped by the U.S. Census;[3] thus, considering impacts associated with degradation of existing visual character or quality may be considered in the context of potential to conflict with applicable zoning and other regulations governing scenic quality. However, as discussed in Section 3.A.2, the *Envision San José 2040 General Plan* (2011) contains general goals regarding visual resources; primarily concern access to scenic resources (Goal CD-9) and maintaining attractive gateways within the City (Goal CD-10), particularly along loosely-defined “Grand Boulevards” and “Rural Scenic Corridors.” Given the limited scenic corridors and gateways in proximity to the Project and because the Project area is within an area of considerable public use and views and is in close proximity to non-urbanized areas located to the south, the District (as Lead Agency) is considering the potential for the Project to substantially degrade the existing visual character or quality of public view of the site and its surrounding.

Impacts to visual quality in non-urbanized areas are generally assessed by estimating the amount of visual change introduced by project components, the degree to which visual changes may be visible to surrounding viewer groups, and the general sensitivity of viewer groups to landscape alterations. Visual changes are usually measured by three factors: (1) the amount of visual contrast that project components create (changes to form, line, color, texture, and scale in the landscape), (2) the amount of view obstruction that occurs (loss of view, duration/timing), and (3) the degradation of specific scenic resources (e.g., removal of scenic trees).

Visual contrast would be significant if it is strong as a result of regraded landforms, alteration or elimination of ridgelines, and changes introduced by the Project that result in landscape colors, textures, and scale of visual components that are inconsistent with a project site’s surroundings. View obstruction would be considered significant if the Project would obstruct foreground (0 to 0.5 mile) or middle ground (0.5 to 3 miles) views of the viewed area seen from sensitive viewpoints. The viewed area is the area of landscape within the field of vision. The sensitive viewpoint is the point from which a view of notable visual quality may be observed.

In cases where the obstruction would be temporary, such as during project construction, the amount of time the obstruction would be present or visible is considered in the impact analysis. It is generally accepted that construction activities or other temporary obstructions lasting less than one year would be considered a less than significant impact.

3 2010 Census – Urbanized Area Reference Map for San Jose, California: https://www2.census.gov/geo/maps/dc10map/UAUC_RefMap/ua/ua79039_san_jose_ca/DC10UA79039.pdf.

Degraded visual quality would be considered significant if the Project severely alters or displaces specific scenic resources composed of striking landform features, aesthetic water bodies, mature stands of native/cultural trees (e.g., historic hedgerows), or historic structures. This degradation would also have a temporal aspect. In the case of construction, a significant visual impact may be created if construction activities were visible for more than one year. Temporary views are also considered, as many of the views would be experienced by motorists traveling the surrounding public roadways, such as Almaden Expressway and Coleman Road. However, these viewing experiences would typically be considered less than significant, as the experience would be a matter of seconds or minutes (e.g., actively driving, waiting at a traffic signal), as opposed to a longer experience, such as visiting the Park or viewing from a residence.

Visual impacts would be considered significant overall if any one of the three measures of significance is identified. These criteria were used to assist in estimating the extent and scale of landscape alterations.

Project Assessment

This study presents the results of field observations and review of background information including Project maps, drawings, technical data, aerial and ground level photographs, and pertinent City of San José and Santa Clara County policies regarding scenic resources. Site reconnaissance was conducted on January 22, 2016 and March 23, 2016 to observe the Project area and to photograph the Project site and surrounding landscape from key representative viewing locations, including public roadways, adjacent residential areas, and nearby open space.

This information is described in the visual setting section above, and depicted in the site photographs included in that section. These photographs document the range of visual conditions seen by the public within the Project area, including locations from within Almaden Lake Park and other nearby publicly accessible areas. The photographs were taken using a digital single lens reflex (SLR) camera and “normal” 50 mm equivalent lens which represent a horizontal view angle of approximately 40 degrees. Photo viewpoint locations were documented using GPS recording and base map annotation. Of the viewpoint locations, four were selected to be developed as visual simulation viewpoints. Computer modeling and rendering techniques were employed to produce a set of visual simulation images showing existing and post-Project views. These simulations provided a clear depiction of the location, scale, and appearance of the Project and documented the visual change that would be anticipated as a result of the Project.

As much of the Project would involve revegetation and restoration of existing and newly created elements of the Park and lake, Project simulations illustrate two post-construction scenarios: views immediately after completion of construction and views eight years after completion of construction. The latter set of simulations is intended to illustrate the lasting appearance of the Project.

Visual simulations of the Project are presented in **Figures 3.A-3a/b** through **3.A-6a/b**. The "a" simulations shows the Project immediately after completion of construction. The "b" simulations show the Project approximately 8 years after the completion of construction. The simulation viewpoint location and direction are shown in Figure 3.A-1.

Impact Summary

Table 3.A-1 provides a summary of impacts to aesthetics.

TABLE 3.A-1
SUMMARY OF AESTHETICS IMPACTS

Impact Statement	Construction	Operation
Impact 3.A-1: The proposed Project would not have a substantial adverse effect on a scenic vista.	LS	LS
Impact 3.A-2: The proposed Project would not substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway or designated scenic corridor.	LS	LS
Impact 3.A-3: The proposed Project would substantially degrade the existing visual character or quality of public views of the site and its surroundings and would not conflict with applicable zoning and other regulations governing scenic quality.	SU	LS
Impact 3.A-4: The proposed Project would not create a new source of substantial light or glare which would adversely affect day or nighttime views in the area.	LS	NI

NI = No impact
LS = Less than significant
SU = Significant and Unavoidable

Impacts and Mitigation Measures

Impact 3.A-1: The proposed Project would not have a substantial adverse effect on a scenic vista. (Less than Significant)

Construction Impacts

The surrounding hills and mountains can be seen from the north, west, and east shores of Almaden Lake. While construction activities in and around the Park, including staging activities, would be visually evident in the foreground when viewing these distant vistas, these activities would be temporary in nature. The Santa Cruz and Diablo mountains would remain in view in the distance. As noted in Chapter 2, Project Description, construction measures such as installation of fences around the construction site would reduce public views. These fences would minimize the visually disruptive views of construction activities which distract from the vista view in the foreground, but the scenic vista of the surrounding mountains would not be greatly impeded. Therefore, in spite of a construction schedule lasting least 2 to 3 years **the impact to scenic vistas would be less than significant during construction**.

Construction of the underground outlet pipe north of Almaden Lake (in two alternate alignments, as shown in Figure 2-5) to convey lake water to Los Alamitos Percolation Pond would be partially seen from Almaden Expressway and the Guadalupe Creek Trail. The roadway and trail would have vista views of the Santa Cruz Mountains to the south. Pipeline installation would include open trench construction, and horizontal directional drilling to install the pipeline beneath Alamitos and Guadalupe Creek. Construction activities would dominate the foreground, potentially detracting from vista views. However, the duration of pipeline construction would be less than one year. Given this relatively short duration, the impact of pipeline construction on vista views would be limited. **Construction of this pipeline would have less than significant impacts on scenic vistas**.

To the south of the Project area, construction of the 2,900-foot underground pipeline that would convey imported water from Almaden Valley Pipeline to the south end of Almaden Lake would not be visible from vista views from Almaden Expressway due to intervening topography, vegetation, residential development, and/or roadside walls/fencing. Views from the Alamitos Creek Trail would be minimized with construction fencing and construction activities would last less than a year. Given this relatively short duration, the impact of pipeline construction on vista views would be limited. **Construction of the pipeline between the Almaden Valley Pipeline and the lake would have less than significant impacts on scenic vistas**.

As any construction materials and/or equipment kept at the staging sites would be blocked from public view by perimeter fencing and warehouse buildings, staging of construction materials for the Project would not impact vista views in this area, and this impact is considered **less than significant** overall, for construction.

Operations Impacts

As can be seen in the visual simulations, all areas disturbed or created by the Project would be revegetated and restored with native vegetation. Immediately upon completion of construction, the visible project components would be in place in the visual foreground and contoured (**Figures 3.A-3a** through **3.A-6a**). It is anticipated that revegetation plantings would reach maturity at approximately eight years and would be visually integrated into the Park's visual appearance, including vista views from outside the Park (**Figures 3.A-3b** through **3.A-6b**), minimizing potential for impact. The banks and lower floodplain of the restored channel would be planted with a corridor of native riparian trees and shrubs. The upper floodplain of the restored channel would be planted with native herbs and grasses, interspersed with patches of upland trees and shrubs. The new lake shore and banks of the islands would be planted with wetland and aquatic species. In total, the Project would install up to eight acres of local, native vegetation (Figures 2-6 and 2-7 in Chapter 2, Project Description). Revegetation and restoration of the Project area would visually integrate the Park with the surrounding naturalistic setting, and enhance vista views from outside the Park, resulting in a **less than significant** impact during Project operation.[4]

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[4] The simulations were developed in November 2016, and the conceptual revegetation plans have evolved over time and will continue to be refined through final Project design, which would occur after the completion of CEQA. However, the simulations are substantially representative of the aesthetic elements of the Project and general placement within the landscape.

Existing View from Almaden Lake Trail - east side of the lake looking northwest (VP 11)

Visual Simulation of proposed project after construction

Refer to Figure 3.A-1 for photograph viewpoint locations

SOURCE: Environmental Vision

Almaden Lake Improvement Project . 130679

Figure 3.A-3a
Almaden Lake Trail - East Side
Visual Simulation of Project after Construction

Existing View from Almaden Lake Trail - east side of the lake looking northwest (VP 11)

Visual Simulation of proposed project with landscaping at approximately 8 years of maturity

Refer to Figure 3.A-1 for photograph viewpoint locations

SOURCE: Environmental Vision

Almaden Lake Improvement Project . 130679

Figure 3.A-3b
Almaden Lake Trail - East Side
Visual Simulation of Project after Eight Years

Existing View from Almaden Lake Trail - southwest side of the lake looking north (VP 15)

Visual Simulation of proposed project after construction

Refer to Figure 1 for photograph viewpoint locations

SOURCE: Environmental Vision

Almaden Lake Improvement Project . 130679

Figure 3.A-4a

Almaden Lake Trail - Southwest Side

Visual Simulation of Project after Construction

Existing View from Almaden Lake Trail - southwest side of the lake looking north (VP 15)

Visual Simulation of proposed project with landscaping at approximately 8 years of maturity

Refer to Figure 1 for photograph viewpoint locations

SOURCE: Environmental Vision

Almaden Lake Improvement Project . 130679

Figure 3.A-4b
Almaden Lake Trail - Southwest Side
Visual Simulation of Project after Eight Years

Existing View from lawn area near West Entrance Station looking east (VP 17)

Visual Simulation of proposed project after construction

Refer to Figure 1 for photograph viewpoint locations

SOURCE: Environmental Vision

Almaden Lake Improvement Project . 130679

Figure 3.A-5a
Lawn area near West Entrance
Visual Simulation of Project after Construction

Existing View from lawn area near West Entrance Station looking east (VP 17)

Visual Simulation of proposed project with landscaping at approximately 8 years of maturity

Refer to Figure 1 for photograph viewpoint locations

SOURCE: Environmental Vision

Almaden Lake Improvement Project . 130679

Figure 3.A-5b
Lawn area near West Entrance
Visual Simulation of Project after Eight Years

Existing View from Coleman Road looking southwest from east of Alamitos Creek (VP 2)

Visual Simulation of proposed project after construction

Refer to Figure 3.A-1 for photograph viewpoint locations

SOURCE: Environmental Vision

Almaden Lake Improvement Project . 130679

Figure 3.A-6a
Coleman Road
Visual Simulation of Project after Construction

Existing View from Coleman Road looking southwest from east of Alamitos Creek (VP 2)

Visual Simulation of proposed project with landscaping at approximately 8 years of maturity

Refer to Figure 3.A-1 for photograph viewpoint locations

SOURCE: Environmental Vision

Almaden Lake Improvement Project . 130679

Figure 3.A-6b
Coleman Road
Visual Simulation of Project after Eight Years

Following installation, the flow-through system pipelines between the Almaden Valley Pipeline and the lake, and between the lake and the Alamitos Percolation Pond, would be below ground surface and not visible. Therefore, these Project elements would not alter viewing of scenic vistas during Project operation, and this impact is considered **less than significant** during Project operation.

Maintenance activities in the Park would be similar to existing maintenance. Maintenance in the restored Alamitos Creek channel could include sediment removal and bank repairs as necessary. Sediment removal is estimated to only be required every ten years and would only require a few weeks on activity within the channel. Given the short duration, **the impact of maintenance activities on vista views would be less than significant**.

Mitigation Measures

None required.

Impact 3.A-2: The proposed Project would not substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway or other designated corridor. (Less than Significant)

There are no State-designated or eligible scenic highways at or near the Project site. Almaden Expressway, which forms the western boundary of the Park, is a Santa Clara County scenic roadway. The Guadalupe Creek Trail, west of the Park, is designated as a Santa Clara County scenic corridor; however, views from this trail to the Project site are blocked by intervening topography and roadways, with the exception of the Almaden Expressway outlet pipeline alignment, which would be visible from the eastern terminus of the Guadalupe Creek Trail.

Construction Impacts

Views of the lake are available from Almaden Expressway, although they are partially screened by intervening trees within the Park and along the roadside. Mature trees and shrubs in the median further enclose views from the southbound lanes; vegetation and topography in the northwestern corner of the Park fully screen views of the lake closer to Coleman Road. Given typical traffic speeds (posted for a maximum of 50 mph) and intervening vegetation, glimpses of the lake from Almaden Expressway are brief in duration and estimated to be less than a few seconds. Therefore, the visual impact of the Project on this scenic corridor would be limited.

Open trench construction of the underground pipe along Almaden Expressway would be visible from Almaden Expressway and the eastern terminus of the Guadalupe Creek Trail. Construction of the pump station would be intermittently visible from Almaden Expressway. To the south of the Project area, construction of the 2,900-foot underground import pipeline would not be visible from Almaden Expressway due to intervening topography, vegetation, and development. Generally, construction activities would dominate roadway views from the Park to the District-owned parcel approximately 0.25 mile to the north, detracting from

Almaden Expressway's scenic aspects. However, the duration of pipeline construction is anticipated to be less than one year, limiting the level of effect of pipeline construction on the scenic aspects of Almaden Expressway. Therefore, construction related impacts of the Project on scenic resources are considered **less than significant**.

Operations Impacts

Views of the lake are available from Almaden Expressway, a county-designated scenic corridor. However, these views would continue to be partially screened by intervening trees within the Park and along the roadside. These trees would not be removed as part of the Project. Mature trees and shrubs in the roadway median would further block views from the southbound lanes; vegetation and topography in the northwestern corner of the Park fully screen views of the lake closer to Coleman Road. Given typical traffic speeds (posted for a maximum of 50 mph) and intervening vegetation, glimpses of the lake from Almaden Expressway would remain brief in duration and estimated to be less than a few seconds. Also, the flow-through system water pipelines, once constructed, would be below ground surface and not visible from this roadway, or from the eastern terminus of the Guadalupe Creek Trail. Therefore, the operation period visual impact from this scenic corridor would be **less than significant**.

Maintenance activities in the Park would be similar to existing maintenance. Maintenance in the restored Alamitos Creek channel could include sediment removal and bank repairs as necessary. There would be limited visibility into the channel from Almaden Expressway given intervening vegetation and travel speeds. Sediment removal is estimated to only be required every ten years and would only require a few weeks on activity within the channel. Given the short duration and limited viewing opportunity from Almaden Expressway, **the impact of maintenance activities from scenic roadways would be less than significant**.

Mitigation Measures

None required.

Impact 3.A-3: The proposed Project would substantially degrade the existing visual character or quality of public views of the site and its surroundings and would not conflict with applicable zoning and other regulations governing scenic quality. (Significant and Unavoidable)

As discussed in Section 3.A.2, the *Envision San José 2040 General Plan* (2011) contains general goals regarding visual resources, primarily concerning access to scenic resources (Goal CD-9) and maintaining attractive gateways within the City (Goal CD-10), particularly along loosely-defined "Grand Boulevards" and "Rural Scenic Corridors." Discussion of effects on scenic corridors, such as those designated in the City's General Plan are discussed in Impact 3A-2, and were determined to be less than significant. As discussed, views of the Project and Almaden Lake are available from designated scenic corridors; however, views of the lake and Project area are viewed in passing, and in the context of existing trees, vegetation, and Park features. Access to the scenic resources associated with the scenic corridors would be maintained. Further, the ‘attractiveness’ of these corridors, as interpreted as ‘gateways’ would not be substantially altered, as further discussed below.

Construction Impacts

The Project would result in temporary, construction-related impacts on the visual character of the surrounding areas. As described in Section 3.A.1, Environmental Setting, the Project site is largely characterized by residential neighborhoods, parks and trails, a golf course, a school with athletic fields, and public utility water retention ponds. Direct public views of the Park portions of the Project site, including staging areas within the Park would be available from adjacent public roadways and sidewalks, as well as the Almaden Lake Village residential area to the east. Construction activities at the Park would continue for the entire construction period, which would exceed 2 years in duration. Project construction would include temporary erection of a fence intended to minimize views of construction activities from surrounding areas. The fence would be located on the border of the construction work area, but would not be able to fully block all views of construction. Once construction around the lake is completed, the restored channel and new levee would be planted with native vegetation and other graded areas would be seeded with grasses. The grasses would establish in a few months, but restoration plantings could take many years to become fully established. In the meantime, the vista of the lake from the Park, which is the main visual element in the fore and middle ground, would be diminished compared to existing conditions. Since construction would last more than one year, and the visual character of the lake would not be fully restored until after restoration plantings are established, **the short-term impact to visual character would be significant during construction**.

The District would have construction fencing installed around the Project area to minimize the visual impact and plant disturbed areas as soon as feasible given the construction schedule and seasonal requirements of planting. There are no other feasible measures to minimize the visual impact during construction and immediately after, therefore **this impact is significant and unavoidable**.

Construction of the flow-through system water pipelines would be seen from Almaden Expressway or from the eastern terminus of the Guadalupe Creek Trail. Construction of the inlet pipeline to the south of the Project area would be visible from residential areas adjacent to the inlet pipeline corridor. This would include the presence of construction equipment, trench spoils, etc. Construction activities would dominate views along the alignments, being visible to motorists, pedestrians, and trail users. These activities would temporarily alter visual context and quality, in comparison to the existing visual character of the immediate area. However, the duration of pipeline construction would be less than one year. Given this relatively short duration, the **impact of pipeline construction on public views would be less than significant**.

Construction materials and/or equipment kept at staging sites at the Winfield Warehouse and the vacant lot at Almaden Expressway and Coleman Avenue would be blocked from public view by existing perimeter fencing and warehouse buildings, with the exception of a portion of the VTA Almaden LRT station. Since the Winfield Warehouse site is an active District warehouse and storage facility, the addition of similar materials would not alter its appearance. Therefore, the Project would have limited impact to the surrounding area's visual character or quality, and construction period impacts on Project area and surrounding visual character or quality would be **less than significant**.

Mitigation Measures

None available.

Operations Impacts

The Project would result in noticeable alterations to the existing lake and Park (Figures 3.A-3a through 3.A-6a). It would include a new maintenance road/pathway and levee separating the channel of Alamitos Creek from the lake, a new pump station on the north side of the lake (either above-ground, or submerged with limited visual features noticeable), as well as reconfiguration of the existing island and addition of another island in the lake. While these improvements would change visual elements of the Park and lake, they would not be considered a substantial degradation of the existing visual character of the site, as these improvements would be consistent with the general appearance of a park, including its existing visually dominant water feature. Further, specific revegetation and restoration features (i.e., vegetation type, placement, etc.) as described under Impact 3.A-1 would be consistent with those in the existing Park once established (Figures 3.A-3b through 3.A-6b).

As noted above, the Project site is already developed as a park facility. The overall visual character of the site would remain typical of an active park. Also, while the Project would be a substantial alteration of the lake, it would not constitute a strong visual contrast in the context of a park. While the total water surface area would be reduced under the Project, the resulting views would nonetheless be comprised of water and vegetated park areas. Further, the inclusion of the realigned creek and associated trail features would provide variation in landform and texture.

The flow-through system water pipelines would be below ground surface and would not be visible after construction. Therefore, operation period impacts related to degrading the existing visual character or quality of the Project site, including views of the existing Park, would be **less than significant**.

Maintenance activities in the Park would be similar to existing maintenance. Maintenance in the restored Alamitos Creek channel could include sediment removal and bank repairs as necessary. Sediment removal is estimated to only be required every ten years and would only require a few weeks on activity within the channel. Given the short duration, **the impact of visual character would be less than significant**.

Mitigation Measures

None required.

Impact 3.A-4: The proposed Project would not create a new source of substantial light or glare which would adversely affect day or nighttime views in the area. (Less than Significant)

Construction Impacts

The primary source of light or glare during Project construction – both in the Park and along the flow-through system water pipeline routes – would be from reflective surfaces on materials and equipment (e.g., windshields). This glare would be intermittent and fleeting due to sky conditions and equipment use and movement. As these activities would primarily occur during the typical work day (i.e., 7:00 a.m. to 7:00 p.m.), the number of active receptors would be anticipated to be low. Project construction would include temporary erection of a fence intended to block horizontal glare from construction activities. Nighttime work is not anticipated. While most construction activities would occur during the dry season, to the extent that construction could occur during winter months, early morning or early evening task lighting may be required for construction work safety when natural lighting may be low. Given the limited morning and evening work hours, substantial light trespass would not result from the temporary use of construction lighting. Construction of the Project would generate a **less than significant** impact due to light or glare.

Operations Impacts

The Project is not intended to develop additional buildings, windows, reflective surfaces, parking areas, roadways, etc., that would generate new sources of light or glare. Security lighting would not be required beyond what is already present in the Park. Therefore, the Project would have **no impact** attributable to light or glare to day or nighttime views in the area.

New maintenance activities would take place during the day and would be limited in occurrence and duration and would have a **less than significant impact on light and glare**.

Mitigation Measures

None required.

3.A.4 References

California Department of Transportation, (Caltrans), 2017. *California Scenic Highways,* last modified February 25, 2017. https://www.arcgis.com/home/item.html?id=f0259b1ad0fe4093a5604c9b838a486a. Accessed December 6, 2019.

City of San José, 2011. *Envision San José 2040 General Plan*. November.

City of San José, 2007. Department of Parks, Recreation & Neighborhood Services. *Upper Guadalupe River Trail*. December.

Environmental Vision, 2016. *Visual Field Work Investigation Plan, Almaden Lake Project*. Prepared for the Santa Clara Valley Water District and Environmental Sciences Associates. August.

Santa Clara, County of. 1994, updated 2008. *Santa Clara County General Plan, 1995-2010*. December.

U.S. Department of Agriculture. Forest Service, 1995. *Landscape Aesthetics: A Handbook for Scenery Management.* USDA Agriculture Handbook No. 701.

3.B Agriculture and Forest Resources

This section describes the environmental and regulatory setting of the Project site and surrounding area with respect to agriculture and forest resources, and includes an analysis of impacts to those resources from the Project. For this assessment, agricultural and forest resources in the vicinity of Almaden Lake are generally defined by farmland classifications, important farmland designations, as established by the California Department of Conservation, Division of Land Resource Protection (DLRP), Williamson Act contracts, and other forest resources. The potential for Project implementation to adversely affect such resources through displacement or conversion of these uses, or through conflicts with the associated zoning categories are analyzed.

3.B.1 Environmental Setting

The Project is in Santa Clara County within the southern portion of the City of San José (Figure 2-1). The site area is surrounded by residential and built-up land as well as areas designated as Grazing Land by the DLRP near the southeast boundary that is currently separated from the lake by the Almaden Lake Trail, a parking lot, and Winfield Boulevard (see Farmland Designations in the Project Vicinity, below). The grazing land is situated in between the Almaden Lake Apartments to the north and the Boulder Ridge Golf Club to the south. There is no land within the Project area that is designated as forest land.

Existing City of San José land use zoning designations in the vicinity of the Project include Light Industrial District, Residence District (1DU/Acre), Agricultural District, Planned Development (Agricultural Base District), Commercial Pedestrian District, and Residence District (5DU/Acre). The purpose of the Agricultural District is to provide for areas where agricultural uses are desirable. The regulations contained in this district are intended to provide for a wide range of agricultural uses as well as implementing the goals and policies of the general plan. The San José Zoning Map[1] designates several parcels in the vicinity of Almaden Lake as an Agricultural District, although these parcels are not in agricultural use. Land use zoning can be irrespective of actual use and future use, and if a parcel is zoned agriculture it does not necessarily need to be in agriculture use to be consistent with the general plan. Existing uses zoned as an Agriculture District in the vicinity of Almaden Lake include the lawn area on the west side of Almaden Lake, and the Los Alamitos Creek Trail corridor south of Almaden Lake. Both parcels have existing park and open space uses, and are not in agricultural use.

Almaden Lake Village and Lakeview Terrace residential areas, the southern portion of the District's Winfield Warehouse property, and the District's headquarters property north of Almaden Lake are zoned as Planned Development (Agricultural Base District). These planned development zoned properties are in residential and public utility use, and are not in agricultural use. Currently, the lawn area on the west side of the lake zoned as Agricultural

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1 City of San José, 2016. Zoning Maps. Available: http://www.sanjoseca.gov/index.aspx?NID=2037, accessed February 11, 2016.

District land is owned by the City of San José, and the Alamitos Creek area is owned by the District. An active commercial nursery is located south of the Agricultural District.

Farmland Classifications

Important farmlands throughout California are designated through the California Department of Conservation (CDC) DLRP. Farmland is classified into the following categories based on soil conditions (i.e., their suitability for agriculture) and current land use.

- ***Prime Farmland*** is land that has the best combination of physical and chemical characteristics for long-term crop production. It has the soil quality, growing season, and moisture supply needed to sustain high crop yields when appropriately treated and managed. In addition, the land must have been used for irrigated agricultural production in the last four years to qualify under this category.
- ***Farmland of Statewide Importance*** is similar to Prime Farmland in that it has a good combination of physical and chemical characteristics for crop production, but with minor shortcomings such as greater slopes and less ability to store moisture.
- ***Unique Farmland*** is land that does not meet the criteria for Prime Farmland or Farmland of Statewide Importance but has been used for the production of the state's leading agricultural crops. This land is usually irrigated, but may include the types of non-irrigated orchards or vineyards that are found in some climatic zones of California. Unique Farmland must have been in agricultural production at some time during the four years prior to the mapping date.
- ***Farmland of Local Importance*** applies to land of importance to the local agricultural economy as determined by the county. This land is either currently producing crops or has the capability of production, but does not meet the criteria of the preceding categories.
- ***Grazing Land*** is land on which the existing vegetation is suited to the grazing of livestock.

Farmland Designations in the Project Vicinity

Maps produced by the California Department of Conservation DLRP show that no Prime Farmland, Farmland of Statewide Importance, Unique Farmland, Farmland of Local Importance, or Grazing Land occur in the Project area. The open space land to the southeast of the Project site across Winfield Boulevard, between the Almaden Lake Apartments and the Boulder Ridge Golf Course is designated as Grazing Land. The closest farmlands designated as Prime Farmland, Unique Farmland and Farmland of Local Importance are located approximately 1.5 miles northeast of the Project site, to the north of State Route (SR) 85. The nearest designation for Farmland of Statewide Importance is located north of the City of Morgan Hill (DLRP, 2019).

Williamson Act Program

The California Land Conservation Act of 1965 (commonly referred to as the Williamson Act) is the state's primary program for the conservation of private land for agricultural and open space uses. This act is described in more detail in the Regulatory Setting section below. The DLRP prepares countywide maps of lands enrolled in Williamson Act contracts and classifies them into the categories described below.

- ***Prime Agricultural Land.*** This category represents the state's highest quality agricultural land. Land in this category is typically used for the production of irrigated crops or to support livestock.
- ***Non-prime Agricultural Land.*** This category represents Open Space Land of Statewide Significance as defined under the California Open Space Subvention Act. Most land in this category is being used for agricultural purposes, such as livestock grazing or non-irrigated crops, but may also include other open space uses that are compatible with agriculture and consistent with local general plans.
- ***Land in Non-renewal.*** This category represents land under a Williamson Act contract that is being terminated at the option of the landowner or local government.

Williamson Act Contracts in the Project Vicinity

None of the parcels within or immediately adjacent to the Project area are enrolled in the Williamson Act program.[2] The parcels surrounding the Project site are designated as non-enrolled and urban and built-up land. The nearest parcels designated as Williamson Act-Prime Agricultural Land or Williamson Act-Non-Renewal Land is north of SR 85. The nearest parcel designated as Williamson Act-Non-Prime Agricultural Land is east of the Boulder Ridge Golf Course. The nearest parcel designated as Williamson Act-Mixed Enrollment Agricultural Land is east of U.S. Route 101 and south of the SR 85 and U.S. Route 101 junction.

3.B.2 Regulatory Setting

Federal Regulations

The Farmland Protection and Policy Act requires an evaluation of the relative value of farmland that could be affected by decisions sponsored in whole or part by the federal government. The Farmland Protection and Policy Act would not apply to the Project because the Project is not a federal government action or program.

State Regulations

As described above, the California Land Conservation Act, or Williamson Act, is the state's primary program aimed at conserving private land for agricultural and open space use. It is a voluntary, locally administered program that offers reduced property taxes on lands whose owners place enforceable restrictions on land use through contracts between the individual landowners and local governments. The Williamson Act provides a mechanism through which private landowners can contract with counties and cities to voluntarily restrict their land to agricultural and compatible open space uses. In return, Williamson Act contracts offer tax

[2] California Department of Conservation, 2013. Division of Land Resource Protection, Santa Clara County Williamson Act Lands 2013/2014. Available: ftp://ftp.consrv.ca.gov/pub/dlrp/wa/SantaClara_13_14_WA.pdf. Accessed February 16, 2016.

incentives by ensuring that land is assessed for its agricultural productivity rather than its highest and best use. Contracts typically restrict land use for a period of 10 years; however, some jurisdictions exercise the option to extend the term for up to 20 years. Contracts are automatically renewed unless the landowner files for non-renewal or petitions for cancellation.

There are no parcels within the Almaden Lake Improvement Project area under a Williamson Act contract.

The Santa Clara County Important Farmland 2016 Map produced by the DLRP (described in Section 3.B.1, Environmental Setting) indicates that land designated as Grazing Land is in the vicinity of the Project's southeast boundary. There is no land designated as Prime Farmland, Farmland of Statewide Importance, Unique Farmland, Farmland of Local Importance, or Grazing Land directly within the Project area.

Local Regulations

City of San José General Plan

The *Envision San José 2040 General Plan* (2011) sets forth a vision and a comprehensive road map to guide the City's continued growth through the year 2040. *Envision San José 2040 General Plan* includes 6 sections – Thriving Community, Environmental Leadership, Quality of Life, Interconnected City, Land Use and Planning, and Implementing the Plan. The General Plan Land Use Map identifies the Project site as Open Space, Parklands and Habitat (OSPH). The OSPH designation is briefly described by the Envision San José 2040 General Plan as lands that can be publicly- or privately-owned areas that are intended for low intensity uses. Land designated as OSPH that is privately owned may be considered for low-intensity agricultural uses under certain conditions.

Parcels designated as Open Hillside that are privately owned may be allowed to support very-low intensity agricultural uses such a grazing. Publicly owned Open Hillside parcels may support uses that promote the study or appreciation of the natural environment, as well as recreational or productive uses which can include sustainable agriculture. The nearest parcel designated for Open Hillside includes the Boulder Ridge Golf Club.

The General Plan allows for agricultural uses for parcels designated for Agriculture (1DU/20AC) that include the following: grazing, dairying, raising of livestock, feedlots, orchards, row crops, nursery stock, flower growing, ancillary residential uses, ancillary commercial uses, and processing of agricultural products. The nearest parcel designated for Agriculture is southwest of the SR 85 and U.S. Route 101 junction.

Zoning

The City of San José's Zoning Ordinance is Chapter 20 of the San José Municipal Code. The San José Zoning Map designates the lawn area on the western side of Almaden Lake and the Los Alamitos Creek Trail corridor south of Almaden Lake as an *Agricultural District* (described in Section 3.B.1, Environmental Setting). The purpose of the *Agricultural District* is to provide for areas where agricultural uses are desirable. The regulations contained in this district are intended to provide for a wide range of agricultural uses as well as implementing the goals and policies of the general plan.

3.B.3 Impacts and Mitigation Measures

Significance Criteria

Implementation of the Project would have a significant impact on agriculture and forestry resources if it were to:

- 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;
- Conflict with existing zoning for agricultural use, or a Williamson Act contract;
- Conflict with existing zoning for, or cause rezoning of, forest land;
- Result in the loss of forest land or conversion of forest land to non-forest use;
- 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.

Approach to Analysis

Avoidance and Minimization Measures Incorporated into the Project

There are no avoidance and minimization measures specific to agriculture and forestry resources contained in the District's Best Management Practices (BMP) Handbook (SCVWD, 2014).

No Impact Significance Determinations

Based on the nature of the Program, there would be no impact related to the following criterion:

Conflict with existing zoning for, or cause rezoning of, forest land. As described in Section 3.B.1 Environmental Setting, there is no land within the Project area that is designated as forest land. Therefore, the Project would have no impact related to the conflict between the Project and existing zoning for, or cause rezoning of, forest land in the Project area and this criterion is not analyzed further.

Result in the loss of forest land or conversion of forest land to non-forest use. As described in Section 3.B.1 Environmental Setting, there is no land within the Project area that is designated as forest land. Therefore, the Project would have no impact related to the loss of forest land or conversion of forest land to non-forest use in the Project area and this criterion is not analyzed further.

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. The Project would not result in changes to the existing environment (for instance, by creating conflicting land uses or operational activities) that would prevent or interfere with agricultural production on land adjacent or near the Project site. There would be no impact related to the conversion of farmland to non-agricultural use or forest land to non-forest use.

Impact Summary

Table 3.B-1 provides a summary of agriculture impacts by implementation phase (construction and operations).

TABLE 3.B-1
SUMMARY OF AGRICULTURE AND FOREST RESOURCES IMPACTS

Impact Statement	Construction	Operation
Impact 3.B-1: The Project would not 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.	LS	NI
Impact 3.B-2: The Project would not conflict with existing zoning for agricultural use, or a Williamson Act contract.	LS	NI

NI = No impact
LS = Less than significant

Impacts and Mitigation Measures

Impact 3.B-1: The Project would not 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. (Less than Significant)

Construction Impacts

As described in Section 3.B.1, Environmental Setting, the site area and vicinity do not include any designated prime farmland, unique farmland, or farmland of statewide importance. Maps produced by the California Department of Conservation, Division of Land Resource Protection show that the open space land to the southeast of the Project site between the Almaden Lake Apartments and the Boulder Ridge Golf Course is designated as Grazing Land (CDC, 2019). Furthermore, there is an existing retail commercial nursery in the Project vicinity.

The closest farmlands designated as Prime Farmland, Unique Farmland and Farmland of Local Importance are located approximately 1.5 miles northeast of the Project site, to the north of State Route (SR) 85. It is possible that construction vehicles, including materials hauling activities, could occur within the vicinity of these farmlands. However, construction vehicles would be limited to existing roadways in the vicinity of the mapped Farmlands and would not affect use of the land such that conversion of use could occur.

Based on the definition of agricultural use contained in the Williamson Act, for purposes of this impact analysis, conversion to “non-agricultural use” would mean that land previously used for producing an agricultural commodity for commercial purposes is no longer capable of serving this purpose. Construction staging and access routes would be located within the defined Project boundaries (as described in Section 2.E.5 of the Project Description) and would not impact any nearby agricultural use such as the retail commercial nursery or designated Grazing Land. Project construction would not prohibit or substantially interfere with continued operation of the commercial nursery or use of adjacent land for grazing purposes. For these reasons, construction of the Project would not result in the conversion of important farmland to a non-agricultural use, and the **impact** would be **less than significant**.

Operations Impacts

Staging areas would be returned to their general pre-Project conditions after construction. Project operations would include the continuation of existing and ongoing maintenance activities at Almaden Lake as well as new activities such as routine vegetation management and maintenance road grading and upkeep. These routine maintenance activities would not impact any nearby agricultural use such as the commercial nursery or designated Grazing Land. For these reasons, operation of the Project would not result in or contribute to the conversion of important farmland to a non-agricultural use, and **no impact** would occur.

Mitigation Measures

None required.

Impact 3.B-2: The Project would not conflict with existing zoning for agricultural use, or a Williamson Act contract. (Less than Significant)

Construction Impacts

As described in Section 3.B.1, Environmental Setting, the City of San José Land Use Zoning Map identifies parcels in the Project area as zoned for agricultural use. However, the existing uses on these parcels are not related to agriculture, and Project construction would temporarily interrupt existing non-agricultural use of these parcels, and would return the parcels to their former non-agricultural uses after construction. For example, the construction staging area proposed on the western side of Almaden Lake operates as a park. Construction activities would temporarily restrict Park activities during Project construction. Upon completion of the Project, the parcel would return to non-agricultural park use. Similarly, the Los Alamitos Creek Trail corridor south of Almaden Lake is zoned for agricultural use. However, the existing use of the creek trail corridor is for open space/park use, and the corridor is not in agricultural use. Construction activities would temporarily disrupt open space uses of portions of the trail corridor during pipeline construction. Upon completion of pipeline construction, the Los Alamitos Creek Trail would return to its non-agricultural function as open space/park use. None of the parcels within or immediately adjacent to the Project area is enrolled in the Williamson

Act program (CDC, 2016). Project construction would not change the existing non-agricultural uses on parcels in the Project area zoned for agriculture or otherwise require a change in the existing zoning, and would not conflict with a Williamson Act contract. As a result, Project construction would have a **less than significant** impact on conflicts with existing zoning for agricultural use, or with Williamson Act contracts.

Operations Impacts

Staging areas would be returned to their general pre-Project conditions after construction. Existing non-agricultural, open space/park uses on parcels zoned for agriculture would resume. Project operations would include the continuation of existing and ongoing maintenance activities at Almaden Lake, as well as new activities such as routine vegetation management and maintenance road grading and upkeep. These routine maintenance activities would support the existing non-agricultural, open space/park uses on the parcel adjacent to the lake zoned for agriculture. The Almaden Valley Pipeline connection pipeline would be buried, and the trail corridor would be revegetated similar to existing conditions. The Los Alamitos Creek Trail corridor would return to open space/park use. Operation of the Project would resume existing non-agricultural, open space/park uses on parcels zoned for agriculture and the Project would not require a change in the existing zoning. None of the parcels within or immediately adjacent to the Project area is enrolled in the Williamson Act program (CDC, 2016). Because the Project would not change existing non-agricultural land uses on parcels zoned for agriculture, Project operations would not conflict with existing agricultural zoning or a Williamson Act contract. **No impact** would occur.

Mitigation Measures

None required.

3.B.4 References

California Department of Conservation (CDC), Division of Land Resource Protection, 2019. Santa Clara County Important Farmland, 2014-2016. Available: https://maps.conservation.ca.gov/dlrp/ciftimeseries/. Accessed July 3, 2019.

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3.C Air Quality

This section describes the environmental and regulatory setting of the Project site and surrounding area with respect to air quality, including criteria air pollutants (CAPs), toxic air contaminants (TACs), and odors. An analysis of impacts to air resources stemming from the Project is also provided, including identification of the appropriate CEQA baseline, a review and summary of the criteria used for determining the significance of environmental impacts, and an analysis of impacts relevant to Project implementation. Mitigation measures are also provided, as relevant, to reduce and minimize the intensity of impacts associated with the Project. If needed, District best management practices (BMPs) and mitigation measures to avoid or reduce significant impacts are also identified. For a discussion of impacts associated with greenhouse gas (GHG) emissions, please refer to Section 3.I, Greenhouse Gas Emissions.

3.C.1 Introduction

Criteria Air Pollutants

The U.S. Environmental Protection Agency (U.S. EPA) has identified certain air pollutants that are a threat to public health and welfare. These pollutants are called “criteria” air pollutants because standards have been established for each of them to meet specific public health and welfare criteria (see Section 3.C.3, Regulatory Setting, below). The following CAPs are a concern in the air basin.

Ozone

Ozone is a respiratory irritant and an oxidant that increases susceptibility to respiratory infections in humans. It can also cause substantial damage to vegetation and other materials, when present in sufficiently high atmospheric concentrations. Ozone is not emitted directly into the atmosphere. Instead, it is a secondary air pollutant that is produced in the atmosphere through a complex series of photochemical reactions involving reactive organic gases (ROG) and nitrogen oxides (NO_X). ROG and NO_X are known as precursor compounds for ozone. Significant ozone production generally requires ozone precursors to be present in a stable atmosphere with strong sunlight for approximately 3 hours.

Ozone is a regional air pollutant because it is not emitted directly by sources, but is formed downwind from sources of ROG and NO_X under the influence of wind and sunlight. Ozone concentrations tend to be higher in the late spring, summer, and fall, when long sunny days combine with regional subsidence inversions to create conditions conducive to the formation and accumulation of secondary photochemical compounds like ozone.

Ozone can cause the muscles in the airways to constrict, potentially leading to wheezing and shortness of breath (U.S. EPA, 2019a). Ozone can make it more difficult to breathe deeply and vigorously; cause shortness of breath and pain when taking a deep breath; cause coughing and sore or scratchy throat; inflame and damage the airways; aggravate lung diseases such as asthma, emphysema, and chronic bronchitis; increase the frequency of asthma attacks; make the lungs more susceptible to infection; continue to damage the lungs even when the symptoms have disappeared; and cause chronic obstructive pulmonary disease (U.S. EPA, 2019a). Long-term exposure to ozone is linked to aggravation of asthma, and is likely to be one of many causes of asthma development, and long-term exposures to higher concentrations of ozone may also be linked to permanent lung damage, such as abnormal lung development in children (U.S. EPA, 2019a). Inhalation of ozone causes inflammation and irritation of the tissues lining human airways, causing and worsening a variety of symptoms, and exposure to ozone can reduce the volume of air that the lungs breathe in and cause shortness of breath (ARB, 2019a).

People most at risk from breathing air containing ozone include people with asthma, children, older adults, and people who are active outdoors, especially outdoor workers (U.S. EPA, 2019a). Children are at greatest risk from exposure to ozone because their lungs are still developing and they are more likely to be active outdoors when ozone levels are high, which increases their exposure (U.S. EPA, 2019a). Studies show that children are no more or less likely to suffer harmful effects than adults; however, children and teens may be more susceptible to ozone and other pollutants because they spend nearly twice as much time outdoors and engaged in vigorous activities compared to adults (ARB, 2019a). Children breathe more rapidly than adults and inhale more pollution per pound of their body weight than adults and are less likely than adults to notice their own symptoms and avoid harmful exposures. Further research may be able to better distinguish between health effects in children and adults (ARB, 2019a).

Nitrogen Oxides

Nitrogen dioxide (NO_2) is an air quality pollutant of concern because it acts as a respiratory irritant. NO_2 is a major component of the group of gaseous nitrogen compounds commonly referred to as NO_X. A precursor to ozone formation, NO_X is produced by fuel combustion in motor vehicles, industrial stationary sources (such as refineries, power plants, and chemical manufacturing facilities), ships, aircraft, and rail transit. Typically, NO_X emitted from fuel combustion is in the form of nitric oxide (NO) and NO_2, with the vast majority (95 percent) of the NO_X emissions being comprised of NO. NO is converted to NO_2 in the atmosphere when it reacts with ozone or undergoes photochemical reactions. Short-term exposures to NO_2 can potentially aggravate respiratory diseases, particularly asthma, leading to respiratory symptoms (such as coughing, wheezing, or difficulty breathing), hospital admissions, and visits to emergency rooms, while longer exposures to elevated concentrations of NO_2 may contribute to the development of asthma and potentially increase susceptibility to respiratory infections (U.S. EPA, 2019b).

Carbon Monoxide

Carbon monoxide (CO) is a non-reactive pollutant that is a product of incomplete combustion; it is mostly associated with emissions from motor vehicle traffic. High CO concentrations develop primarily during winter when periods of light winds combine with the formation of ground-level temperature inversions (typically from the evening through early morning). These conditions result in reduced dispersion of vehicle emissions. Motor vehicles also exhibit increased CO emission rates at low air temperatures. When inhaled at high concentrations, CO combines with hemoglobin in the blood and reduces the oxygen-carrying capacity of the blood. This results in reduced levels of oxygen reaching the brain, heart, and other body tissues. This condition is especially critical for people with cardiovascular diseases, chronic lung disease, or anemia.

Particulate Matter

Particulate matter less than 10 microns in diameter (PM_{10}) and particulate matter less than 2.5 microns in diameter ($PM_{2.5}$) represent fractions of particulate matter that can be inhaled into air passages and the lungs, and can cause adverse health effects. Particulate matter in the atmosphere results from many kinds of dust- and fume-producing industrial and agricultural operations, fuel combustion, and atmospheric photochemical reactions. Some sources of particulate matter, such as demolition and construction activities, are more local in nature, while others, such as vehicular traffic, have a more regional effect. Very small particles of certain substances (e.g., sulfates and nitrates) can cause lung damage directly, or can contain adsorbed gases (e.g., chlorides or ammonium) that may be injurious to health. According to a study prepared by the California Air Resources Board (ARB), exposure to ambient $PM_{2.5}$, particularly diesel particulate matter (DPM), can be associated with approximately 14,000 to 24,000 premature annual deaths per year statewide (ARB, 2010). Particulate matter also can damage materials and reduce visibility.

Toxic Air Contaminants

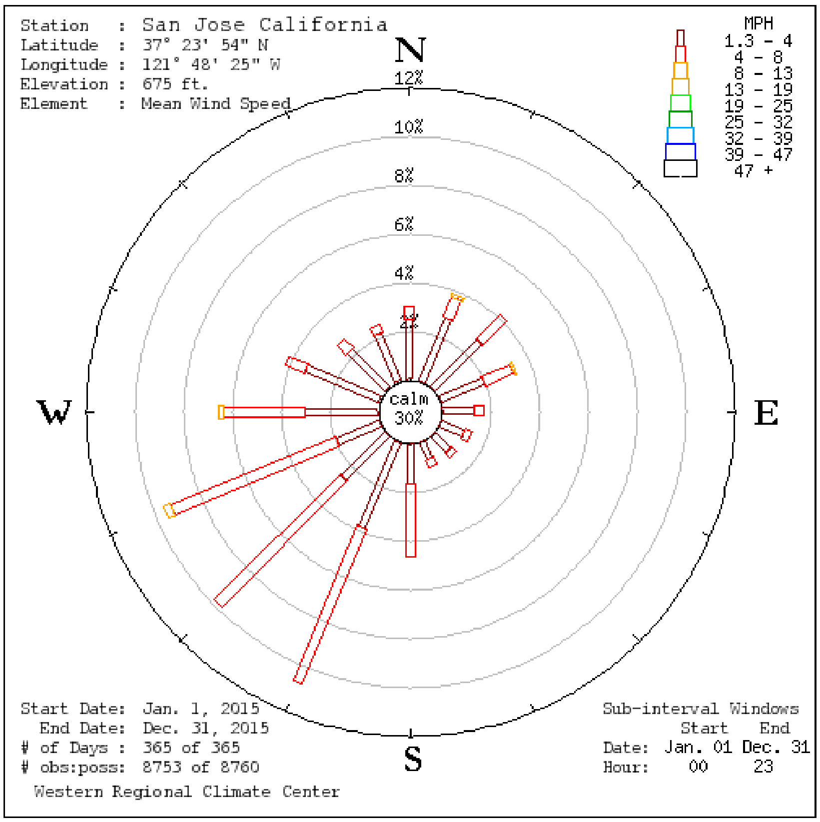
TACs are airborne substances that are capable of causing short-term (acute) and/or long-term (chronic or carcinogenic, i.e., cancer-causing) adverse human health effects (i.e., injury or illness). TACs include both organic and inorganic chemical substances. They may be emitted from a variety of common sources including gasoline stations, automobiles, dry cleaners, industrial operations, and painting operations. The current California list of TACs includes approximately 200 compounds, including DPM emissions from diesel-fueled engines (ARB, 2011).

3.C.2 Environmental Setting

Regional Topography, Meteorology, and Climate

The Project site is located at the southern end of the Santa Clara Valley (Valley), which is oriented northwest-southeast and bounded by the Santa Cruz Mountains to the west, the Diablo Range to the east, the San Francisco Bay to the north and the convergence of the Gabilan Range and the Diablo Range to the south. The climate includes warm, dry summers and cool, relatively rainy winters. The Project vicinity typically has average maximum and minimum winter (i.e., January) temperatures of 58 degrees Fahrenheit (°F) and 42°F, respectively, while average summer (i.e., July) maximum and minimum temperatures are 82°F and 57°F, respectively. Total precipitation in the area averages 15 inches per year, with precipitation events being concentrated from November through April (WRCC, 2017).

As a result of the Valley's northwest-southeast axis, wind patterns in the Valley include north-northwesterly sea breezes extending up the valley during the afternoon and early evening and a light south-southeasterly drainage flow occurring during the late evening and early morning. Wind speeds are highest in the spring and summer and lowest in the fall and winter (BAAQMD, 2016). **Figure 3.C-1** presents a wind rose[1] for the Project area, based on data from January 2015 to December 2015 from the San José Station, located 12 miles northeast of the Project site. As shown in the figure, winds at the San José Station blow from the southwest a majority of the time. Specifically, the four spokes around the southwest direction (W, WSW, SW, and SSW) comprise about 36 percent of all hourly wind directions. The station rarely experienced winds at speeds greater than 13 mph (WRCC, 2016b).



SOURCE: WRCC, 2016b

Figure 3.C-1
San José Wind Rose

Air pollution in Santa Clara County can be high as a result of the large population base and extent of mobile sources in the area. Ozone is the primary pollutant of concern in the summer and $PM_{2.5}$ is the primary pollutant of concern in the winter. Ozone frequently forms on hot summer days when the prevailing seasonal northerly winds carry ozone precursors southward across the county, causing health standards to be exceeded. The high population density, wood smoke, industrial and freeway traffic, and poor wintertime air circulation

[1] A wind rose is a figure that is used to display how wind speed and direction are typically distributed at a particular location. The length of each spoke is related to the frequency of time that the wind blows from each direction, while the colored segments within the spoke correspond to different wind speed ranges.

caused by extensive hills to the east and west that block wind flow into the region can cause many exceedances of $PM_{2.5}$ during the winter months.

Existing Air Quality

The Bay Area Air Quality Management District's (BAAQMD's) regional monitoring network measures the ambient concentrations of CAPs. Monitoring on the Project site has not been completed; however, existing levels of air quality at the Project site can be inferred from ambient air quality measurements conducted by BAAQMD at its closest stations to the Project. The closest air quality monitoring station is the Jackson Street Monitoring Station located approximately five miles south-southeast of the Project site. The Jackson Street station monitors ozone, PM_{10}, $PM_{2.5}$, and NO_2. **Table 3.C-1** shows a three-year (2015 through 2017) summary of the most up-to-date available data monitored at the Jackson Street Monitoring Station. The data are compared to the California Ambient Air Quality Standards (CAAQS) and National Ambient Air Quality Standards (NAAQS).

TABLE 3.C-1
AIR QUALITY DATA SUMMARY (2015–2017) FOR THE PROJECT AREA

Pollutant	Standard	Monitoring Data by Year		
		2015	**2016**	**2017**
Ozone				
Highest State 1-Hour Average (ppm)	0.09 ppm	0.094	0.087	0.121
Days over State Standard		0	0	3
Highest National 8-Hour Average (ppm)	0.070 ppm	0.081	0.066	0.098
Days over National Standard		2	0	4
Respirable Particulate Matter (PM_{10})				
Highest State 24-Hour Average (μg/m^3) Highest 24-hour average, μg/m^3 [c]	50 μg/m^3	58.8	40.0	69.4
Measured Days over State Standard		1	0	6
Measured Days over National Standard	150 μg/m^3	0	0	0
State Annual Average (μg/m^3)	20 μg/m^3	21.9	18.3	21.3
Fine Particulate Matter ($PM_{2.5}$)				
Highest National 24-Hour Average (μg/m^3) Highest 24-hour average, μg/m^3 [c]	35 μg/m^3	49.4	22.6	49.7
Measured Days over National Standard		2	0	6
State Annual Average (μg/m^3)	12 μg/m^3	10.6	8.4	*
Nitrogen Dioxide (NO_2)				
Highest National Hourly Average (ppm) Highest 24-hour average, μg/m^{3}c	0.100 ppm	0.049	0.051	0.068
Measured Days over National Standard		0	0	0

NOTES: Measurements are from the Jackson Street Monitoring Station in San José.

ppm = Parts per million
μg/m^3 = Micrograms per cubic meter
* = There was insufficient data available to determine the value.

SOURCES: ARB, 2016; ARB, 2019

As shown in Table 3.C-1, the state 1-hour ozone standard was not exceeded in 2015 or 2016, but was exceeded three times in 2017; the federal 8-hour ozone standards were exceeded twice in 2015 and four times in 2017; and there were no exceedances of the federal or state 8-hour standards in 2016. The 24-hour state PM_{10} standard was exceeded once in 2015, six times in 2017, and there were no exceedances of the 24-hour state PM_{10} standard in 2016. There were no exceedances of the national 24-hour PM_{10} standard during the three-year study period, and the PM_{10} annual average concentration exceeded the state standard in 2015 and 2017. The $PM_{2.5}$ 24-hour national standard was exceeded two times in 2015 and six times in 2017, and there were no exceedances of the 24-hour national $PM_{2.5}$ standard in 2016. The $PM_{2.5}$ annual average concentration did not exceed the state standard in 2015 or 2016 and there was insufficient data available or 2017. There were no exceedances of the NO_2 standards during the three-year study period.

Sensitive Receptors

For the purposes of this air quality analysis, sensitive receptors are defined as facilities and land uses that include members of the population that are particularly sensitive to the effects of air pollutants, such as children, the elderly, and people with illnesses. Examples include schools, hospitals, and daycare centers. The reasons for greater than average sensitivity include pre-existing health problems, proximity to emissions sources, and/or duration of exposure to air pollutants. Schools, hospitals, and convalescent homes are considered to be relatively sensitive to poor air quality because children, elderly people, and the infirm are more susceptible to respiratory distress and other air quality-related health problems than the general public. Residential areas are considered sensitive to poor air quality because people usually stay home for extended periods of time, which results in greater exposure to ambient air quality.

There are sensitive receptors (e.g., residences) in the immediate vicinity of the Project area. These include residences located around Almaden Lake, separated by Coleman Road, Winfield Boulevard, and Almaden Expressway. The closest receptors that would be exposed to airborne health risks associated with Project related emissions are the residences located at Lakeview Terrace, which is east of Almaden Lake Park and Almaden Lake Village, which is north of Coleman Road and adjacent to one of the proposed access routes. Almaden Hill Estates is located south of Almaden Lake along Alamitos Creek, and would be located as close as approximately 50 feet of the pipeline connection between Almaden Valley Pipeline and Almaden Lake. Residences to the west of Almaden Lake would be as close as within approximately 100 feet of the pipeline connection between Almaden Lake and the Los Alamitos Percolation Pond. There is a senior housing complex called Le Mirador Senior Apartments, located 600 feet northwest of main Project area. There are no schools, daycare or long-term care facilities identified within 1,000 feet of the main Project area, but Pioneer High School is within 750 feet of the pipeline conveyance alignment between Almaden Lake and the Los Alamitos Percolation Pond.

Baseline Conditions

Existing Sources of Air Emissions

Existing sources of criteria pollutants at the Project site consist mainly of mobile emissions from vehicles traveling on roadways surrounding the Project site. There are no existing stationary sources of TACs at the Project site.

Existing Sources of Odors

During warm summer months, large algal blooms can occur in Almaden Lake. However, concerns regarding odors associated with the blooms have not been identified by the public. No other substantial odor-generating activities are practiced on site.

3.C.3 Regulatory Setting

Established federal, state, and regional regulations provide the framework for analyzing and controlling air pollutant emissions and thus general air quality. The U.S. EPA is responsible for implementing the programs established under the federal Clean Air Act (CAA), such as establishing and reviewing the federal ambient air quality standards and reviewing State Implementation Plans (SIPs), described further below. However, the U.S. EPA has delegated the authority to implement many of the federal programs to the states while retaining an oversight role to ensure that the programs continue to be implemented. In California, the ARB is responsible for establishing and reviewing the state ambient air quality standards, developing and managing the California SIP, securing approval of this plan from the U.S. EPA, and identifying TACs. California's ARB also regulates mobile emissions sources in California, such as construction equipment, trucks, and automobiles, and oversees the activities of air quality management districts, which are organized at the county or regional level. An air quality management district is primarily responsible for regulating stationary emission sources at facilities within its geographic areas, and for preparing the air quality plans that are required under the federal CAA and the 1988 California CAA. The BAAQMD is the regional agency with regulatory authority over emission sources in the nine county San Francisco Bay Area.

The regulatory settings for the following classes of air pollutants are discussed below: criteria pollutants, odiferous compounds, and TACs.

Federal and State

Regulation of criteria air pollutants is achieved through both national and state ambient air quality standards and emissions limits for individual sources. Regulations implementing the federal CAA and its subsequent amendments established national ambient air quality standards (national standards) for six criteria pollutants: ozone, NO_2, SO_2, PM_{10}, $PM_{2.5}$, and lead. California has adopted more stringent state ambient air quality standards for most of the criteria air pollutants. In addition, California has established state ambient air quality standards for sulfates, hydrogen sulfide, vinyl chloride, and visibility-reducing particles. Because of the meteorological conditions in the state, there is considerable difference between some of state and federal standards in California, as shown in **Table 3.C-2**.

**TABLE 3.C-2
AMBIENT AIR QUALITY STANDARDS AND SAN FRANCISCO BAY AREA
AIR BASIN ATTAINMENT STATUS**

Pollutant	Averaging Time	State Standard	SF Air Basin Attainment Status for California Standard	Federal Primary Standard	SF Air Basin Attainment Status for Federal Standard
Ozone	8 hour	0.070 ppm	Non-Attainment	0.070 ppm	Non-Attainment
	1 hour	0.090 ppm	Non-Attainment	---	---
Carbon Monoxide	8 hour	9.0 ppm	Attainment	9 ppm	Attainment
	1 Hour	20 ppm	Attainment	35 ppm	Attainment
Nitrogen Dioxide	Annual Average	0.030 ppm	---	0.053 ppm	Attainment
	1 Hour	0.18 ppm	Attainment	0.100 ppm	Unclassified
Sulfur Dioxide	Annual Average	---	---	0.030 ppm	Attainment
	24 Hour	0.04 ppm	Attainment	0.14 ppm	Attainment
	1 Hour	0.25 ppm	Attainment	0.075 ppm	Attainment
Respirable Particulate Matter (PM_{10})	Annual Arithmetic Mean	20 $\mu g/m^3$	Non-Attainment	---	---
	24 hour	50 $\mu g/m^3$	Non-Attainment	150 $\mu g/m^3$	Unclassified
Fine Particulate Matter ($PM_{2.5}$)	Annual Arithmetic Mean	12 $\mu g/m^3$	Non-Attainment	15 $\mu g/m^3$	Unclassified/Attainment
	24 hour	---	---	35 $\mu g/m^3$	Non-Attainment
Sulfates	24 hour	25 $\mu g/m^3$	Attainment	---	---
Lead	Calendar Quarter	---	---	1.5 $\mu g/m^3$	Attainment
	30 Day Average	1.5 $\mu g/m^3$	---	---	Attainment
	3-month Rolling Average	---	---	0.15 $\mu g/m^3$	Attainment
Hydrogen Sulfide	1 hour	0.03 ppm	Unclassified	---	---
Vinyl Chloride	24 hour	0.010 ppm	No information available	---	---
Visibility Reducing Particles	8 hour	Extinction of 0.23/km; visibility of 10 miles or more	Unclassified	---	---

NOTES: ppm = parts per million; $\mu g/m^3$ = micrograms per cubic meter

SOURCE: BAAQMD, 2017a.

The ambient air quality standards are intended to protect public health and welfare, and they incorporate a margin of safety. They are designed to protect those segments of the public most susceptible to respiratory distress, known as sensitive receptors, including people with asthma, the very young, elderly, people weak from other illness or disease, or persons engaged in strenuous work or exercise. Healthy adults can tolerate occasional exposure to air pollution levels somewhat above the ambient air quality standards before adverse health effects are observed.

Attainment Status

Under amendments to the federal CAA, U.S. EPA has classified air basins or portions thereof as either “attainment” or “non-attainment” for each criteria air pollutant, based on whether or not the national standards have been achieved. The California CAA, which is patterned after the federal CAA, also requires areas to be designated as “attainment” or “non-attainment” for the state standards. Thus, areas in California have two sets of attainment / non-attainment designations: one set with respect to the national standards and one set with respect to the state standards. Table 3.C-2 shows the attainment status of the San Francisco Bay Area Air Basin (SFBAAB) with respect to the national and state ambient air quality standards for different criteria pollutants.

Federal Regulations

The U.S. EPA is responsible for implementing programs established by the federal CAA, such as establishing and reviewing the NAAQS for the following air pollutants: CO, ozone, NO_2, SO_2, PM_{10}, $PM_{2.5}$, and lead. The federal CAA also requires the U.S. EPA to designate areas (counties or air basins) as attainment or non-attainment with respect to each CAP, depending on whether the area meets the NAAQS. If an area is designated as non-attainment, it does not meet the NAAQS and is required to create and maintain a SIP for achieving compliance with the NAAQS. Conformity to the SIP is defined under the 1990 CAA amendments as conformity with the plan’s purpose in eliminating or reducing the severity and number of violations of the NAAQS and achieving expeditious attainment of these standards. Air quality within the SFBAAB is classified as nonattainment for the federal 8-hour ozone and 24-hour $PM_{2.5}$ standards.

State Regulations

California’s ARB is the agency delegated responsibility for preparing and submitting the SIP to the U.S. EPA. The ARB also oversees air quality policies in California and has established CAAQS for NO_2, CO, PM_{10}, $PM_{2.5}$, SO_2, ozone, lead, sulfates, hydrogen sulfide, vinyl chloride, and visibility reducing particles. The CAAQS are at least as stringent (and typically more stringent) than the NAAQS.

The California CAA was approved in 1988 and requires each local air district in the state to prepare an air quality plan to achieve compliance with the CAAQS. Similar to the U.S. EPA, the ARB designates counties or air basins in California as attainment or non-attainment with respect to the CAAQS. Air quality within the basin does not attain the state standards for ozone, PM_{10} and $PM_{2.5}$.

Bay Area Air Quality Management District

The Project is within the jurisdiction of the BAAQMD, which is the local agency delegated responsibility for preparing, adopting, and implementing stationary and area air emission control measures and standards.

BAAQMD Air Quality Plans

The 1977 CAA amendments require that regional planning and air pollution control agencies prepare a regional Air Quality Plan to outline the measures by which both stationary and mobile sources of pollutants can be controlled in order to achieve all standards specified in the CAA. The California CAA also requires development of air quality plans and strategies to meet state air quality standards in areas designated as non-attainment (with the exception of areas designated as non-attainment for the state PM standards). Maintenance plans are required for attainment areas that had previously been designated non-attainment in order to ensure continued attainment of the standards. (As indicated above, air quality plans developed to meet federal requirements are referred to as SIPs).

For state air quality planning purposes, the SFBAAB is classified as a serious non-attainment area for the 1-hour ozone standard. The "serious" classification triggers various plan submittal requirements and transportation performance standards. One such requirement is that the BAAQMD update the Clean Air Plan every three years to reflect progress in meeting the air quality standards and to incorporate new information regarding the feasibility of control measures and new emission inventory data. The Bay Area's record of progress in implementing previous measures must also be reviewed. The plans for the SFBAAB are prepared with the cooperation of the Metropolitan Transportation Commission (MTC), and the Association of Bay Area Governments (ABAG). On April 19, 2017, the BAAQMD adopted the most recent revision to the Clean Air Plan - the 2017 Bay Area Clean Air Plan (2017 CAP) (BAAQMD, 2017b). The 2017 CAP serves to:

- Protect the environment and offer a long-range vision of how the Bay Area could function in a year 2050 post-carbon economy, and describes a control strategy that the BAAQMD will implement over the next 3 to 5 years.
- Update the most recent BAAQMD ozone plan, the 2010 Clean Air Plan, to fulfill State ozone planning requirements. The 2017 control strategy includes all feasible measures to reduce emissions of ROG and NO_x and reduce transport of ozone and its precursors to neighboring air basins.
- Build upon and enhance the BAAQMD's efforts to reduce emissions of fine particulate matter and toxic air contaminants.

Under the California CAA, the BAAQMD is required to develop an air quality attainment plan for non-attainment criteria pollutants within the air district. The Project is subject to BAAQMD rules and regulations governing CAPs, TACs, and odorous compounds even though permits may not be required.

City of San José

Envision San José 2040 General Plan

The *Envision San José 2040 General Plan* (General Plan) provides planning guidance for projects within the city of San José. Specific to air quality, the General Plan contains policies that pertain to the Project. In general, the applicable General Plan policies require the Project to comply with all federal and state regulations and follow the *BAAQMD CEQA Air Quality Guidelines* (BAAQMD Guidelines). Although some of the listed policies are directed to new development the Project would generate construction emissions that would be similar to construction required for new development:

> **Policy MS-10.1.** Assess projected air emissions from new development in conformance with the Bay Area Air Quality Management District (BAAQMD) CEQA Guidelines and relative to state and federal standards. Identify and implement feasible air emission reduction measures.
>
> **Policy MS-10.2.** Consider the cumulative air quality impacts from proposed developments for proposed land use designation changes and new development, consistent with the region's Clean Air Plan and State law.
>
> **Policy MS-10.4.** Encourage effective regulation of mobile and stationary sources of air pollution, both inside and outside of San José. In particular, support Federal and State regulations to improve automobile emission controls.
>
> **Policy MS-10.7.** Encourage regional and statewide air pollutant emission reduction through energy conservation to improve air quality.
>
> **Policy MS-11.2.** For projects that emit toxic air contaminants, require project proponents to prepare health risk assessments in accordance with BAAQMD-recommended procedures as part of environmental review and employ effective mitigation to reduce possible health risks to a less than significant level. Alternatively, require new projects (such as, but not limited to, industrial, manufacturing, and processing facilities) that are sources of TACs to be located an adequate distance from residential areas and other sensitive receptors.[2]
>
> **Policy MS-11.3.** Review projects generating significant heavy duty truck traffic to designate truck routes that minimize exposure of sensitive receptors to TACs and particulate matter.
>
> **Policy MS-11.8.** For new projects that generate truck traffic, require signage which reminds drivers that the State truck idling law limits truck idling to five minutes.

[2] Policies MS-11.1, MS-11.6 and MS-11.7 were not included since they provide the same goals as MS-11.2, the most relevant policy related to the Project.

3.C.4 Impacts and Mitigation Measures

Significance Criteria

For the purposes of this EIR, an impact related to air quality is significant if implementation of the Project would:

- Conflict with or obstruct implementation of the applicable air quality plan;
- Result in a cumulatively considerable net increase of any criteria pollutant for which the region is in nonattainment under an applicable federal or state ambient air quality standard;
- Expose sensitive receptors to substantial pollutant concentrations; or
- Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people.

The analysis presented in this report uses the methodologies provided in the BAAQMD Guidelines, as updated in 2017 (BAAQMD, 2017c). The District, as the lead agency, has determined that Appendix D of the BAAQMD Guidelines, in combination with BAAQMD's Revised Draft Options and Justification Report, provide substantial evidence to support the applicable thresholds and, therefore, has determined they are appropriate for use in this analysis. Below are the specific thresholds that are used to judge the significance of the air quality impacts that would be associated with the Project.

Methodology

Air Quality Plans

BAAQMD recommends that the lead agency approving a project where an air quality plan consistency determination is required analyze the project with respect to the following questions:

(1) does the project support the primary goals of the 2017 CAP?

(2) does the project include applicable control measures from the 2017 CAP?

(3) does the project disrupt or hinder implementation of any 2017 CAP control measures?

If the first two questions are concluded in the affirmative, and the third question concluded in the negative, the BAAQMD considers the project consistent with the 2017 Clean Air Plan.

Any project that would not support the 2017 Clean Air Plan goals would not be considered consistent with the 2017 Clean Air Plan. The recommended measure for determining Project support of these goals is consistency with CEQA thresholds of significance. If the CEQA thresholds of significance are exceeded, then the Project would not be considered to support the 2017 Clean Air Plan goals, and the associated impact would be significant.

Criteria Pollutants

The analysis of criteria pollutants considers the impacts related to emissions of non-attainment pollutants and their precursors. Although ozone would not be directly emitted by Project-related construction equipment, the ozone precursors ROG and NO_x would be emitted and are therefore, along with particulate matter, the focus of the impact assessment. Given that ozone formation occurs through a complex photo-chemical reaction between NO_x and ROG in the atmosphere with the presence of sunlight, the impacts of ozone are typically considered on a basin-wide or regional basis instead of a localized basis. The ambient air quality standards for ozone are concentration-based; they are not based on the mass of their precursor pollutants (i.e., NO_X and ROG). It is not necessarily the mass of precursor pollutants that causes human health effects, as opposed to the concentration of resulting ozone or particulate matter. Because of the complexity of ozone formation and the non-linear relationship of ozone concentration with its precursor gases, and given the state of environmental science modeling in use at this time, it is infeasible to convert specific emissions levels of NO_X or ROG emitted in a particular area to a particular concentration of ozone in that area. Meteorology, the presence of sunlight, seasonal impacts, and other complex chemical factors all combine to determine the ultimate concentration and location of ozone (SCAMQD, 2014; SJVAPCD, 2014).

Impacts related to the Project contributing to an existing or projected air quality violation and whether the Project would result in a cumulatively considerable net increase of any criteria pollutant or associated precursors are judged by comparing estimated direct and indirect Project exhaust emissions to the significance thresholds, which for short-term construction emissions are 54 pounds per day for ROG, NO_X, and $PM_{2.5}$; and 82 pounds per day for PM_{10}. Only the exhaust portion of $PM_{2.5}$ and PM_{10} emissions are compared against the construction thresholds. The BAAQMD considers implementation of its recommended mitigation measures for fugitive dust sufficient to ensure that construction-related fugitive dust is reduced to a less than significant level. Therefore, the BAAQMD recommends that analyses focus on implementation of dust control measures rather than comparing estimated levels of fugitive dust to a quantitative significance threshold. For long-term operations, the BAAQMD has two sets of significance thresholds, including daily thresholds that are the same as the construction thresholds, and annual thresholds that are 10 tons per year for ROG, NO_X, and $PM_{2.5}$; and 15 tons per year for PM_{10}.

Same as expressed in the *amicus curiae* brief submitted for the *Sierra Club v. County of Fresno* case (*Friant Ranch Case*), the significance thresholds described above were set at emission levels tied to the region's attainment status; they are emission levels at which stationary pollution sources permitted by the BAAQMD must offset their emissions and CEQA projects must use feasible mitigations, and they are not intended to be indicative of any localized human health impact that a project may have. Therefore, the Project's exceedance of the mass regional emissions threshold (i.e., pounds per day NOx thresholds) prior to mitigation from construction-related activities does not necessarily indicate that the Project would cause or contribute to the exposure of sensitive receptors to ground-level concentrations in excess of health-protective levels.

Furthermore, available models today are designed to determine regional, population-wide health impacts, and cannot accurately quantify ozone-related health impacts caused by NO_X or VOCs emissions from Project level. Therefore, it is infeasible to connect the Project level NO_X emissions to ozone-related health impacts at this time.

The primary health concern with exposure to NO_X emissions is the secondary formation of ozone. As the *amicus curiae* briefs submitted for the Friant Ranch Case suggested, because of the complexity of ozone formation and given the state of environmental science modeling in use at this time, it is infeasible to determine whether, or the extent to which, a single project's precursor (i.e., NO_X and ROG) emissions would result in the formation of secondary ground-level ozone and the geographic and temporal distribution of such secondary formed emissions. Meteorology, the presence of sunlight, seasonal impacts, and other complex chemical factors all combine to determine the ultimate concentration and location of ozone. Furthermore, available models today are designed to determine regional, population-wide health impacts, and cannot accurately quantify ozone-related health impacts caused by NO_X or ROG emissions from local level (project level).

Community Health Risk

Impacts associated with the Project exposing sensitive receptors or the general public to substantial pollutant concentrations are evaluated by assessing the health risks posed by the placement of new sources of TAC emissions near existing sensitive receptors. Specifically, according to the BAAQMD, the Project would have a significant air quality impact if the construction phase would expose persons to substantial levels of TACs, such that the probability of contracting cancer exceeds 10 in one million, or if it would expose persons to pollutants such that a chronic Hazard Index of 1.0 would be exceeded. The Project would not site any new sources of TAC emissions and would have no operational health risk impacts. The Project's only source of TAC emissions is DPM exhaust from off-road equipment and heavy duty trucks during construction. DPM does not have any measurable acute health risks and therefore no exposure threshold exists for this pollutant.

In addition, a significant impact would occur if construction of the Project would result in an incremental increase in annual average ambient concentrations of $PM_{2.5}$ of more than 0.3 microgram per cubic meter ($\mu g/m^3$). The Project would have a significant cumulative health risk impact if the combined cancer risk associated with all local permitted stationary sources and major roadways plus the risks associated with the Project at the maximally exposed individual (MEI) exceeds 100 in one million, results in a non-cancer Hazard Index that exceeds 10, or results in incremental increase in annual average $PM_{2.5}$ concentrations that exceed 0.8 $\mu g/m^3$ (BAAQMD, 2017c).

Odors

Impacts related to the Project creating or exposing a substantial number of people to objectionable odors is evaluated based on the potential for the Project to generate odors that could affect nearby sensitive receptors.

Approach to Analysis

Construction- and operation-related emissions associated with Project were quantified using the methods described below for comparison to the BAAQMD Project-level thresholds discussed previously.

Construction Emissions

Exhaust criteria pollutant emissions that would be associated with the on-site and off-site construction-related activity for the Project were estimated using the latest available version of the California Emissions Estimator Model version 2016.3.2 (CalEEMod). CalEEMod was developed by the South Coast Air Quality Management District and other California air districts for the specific purpose of assisting lead agencies in determining a project's air quality impacts. The model combines the databases from both ARB's EMFAC and OFFROAD models into a single tool and captures most of the Project's emissions producing activities associated with construction equipment, worker vehicles and heavy duty trucks. A standalone spreadsheet with industry-based locomotive and railroad calculations and criteria pollutant emission factors was utilized to derive emissions from rail hauling of mercury-laden sediment removed from Almaden Lake.

Project assumptions for the air quality analysis were developed in consultation with District staff to reflect each phase of the Project's construction; and assuming a conservative construction scenario with maximum concurrent activities, which would result in an expedited overall construction schedule of 24 months. This information consisted of a customized phased schedule along with a list of required off-road construction equipment, equipment daily use hours and workdays, worker trips, vendor trips, hauling trips, and trip mileage rates required to complete the Project. This information was then entered into CalEEMod to estimate the Project's annual construction-related criteria pollutant mass emissions. CalEEMod defaults were used for Project components in which there were no Project-specific data. **Appendix B (Air Quality and Greenhouse Gas Report)** contains the construction schedule, emissions spreadsheets, and CalEEMod output sheets used to quantify the Project's criteria pollutant construction emissions.

The District identified two disposal options for lake bed sediment found to exceed maximum contamination standards for local disposal: hauling via heavy duty trucks to an approved disposal site in Kettleman City, California or hauling via heavy duty trucks to the Port of Oakland, where sediments would be loaded onto railcars and shipped via rail to an approved disposal site in Utah. The scope of criteria pollutants analysis related to this activity was limited to emissions that would occur within the nine-county BAAQMD jurisdiction. In order to provide the most conservative and worst-case scenario, emissions were calculated for the second, farther truck hauling distance with railcar shipping option. Therefore, the analysis presented below represents a worst-case scenario.

It should be noted that although the one-time hauling of lakebed sediment by railcars would result in locomotive emissions in other California air basins as well as in Nevada and Utah, these emissions were not quantified and compared to the significance thresholds because they would occur outside of the BAAQMD's jurisdiction and it would be speculative at this time to define the route(s) that the railcars would take outside of the air basin. Since analysis of criteria pollutants is dependent on the location they would be generated and the route(s) that would be selected by the railroad to the disposal facility are currently unknown, analysis outside of the air basin has not been conducted. A standalone locomotive and railroad spreadsheet containing specific data such as diesel fuel consumption, number of railroad cars needed, railroad car capacities, railroad car weights, etc., was created to quantify emissions from the hauling of removed lake bed sediment. Based on the above regional methodology, criteria pollutant emissions for the roundtrip rail distance from Oakland, California to the approximate BAAQMD jurisdictional border in northeastern Solano County were calculated and added to the Project's on-site and off-site GHG emissions. The Project's construction period emissions were then divided by a conservative estimate of the total number of construction work days (i.e., 506 workdays) and converted into pounds to derive the average daily construction emissions. **Appendix B** contains the emissions summary spreadsheet used for these calculations.

Health Risk

A health risk assessment (HRA) evaluated the risks to nearby receptors from exposure to TACs associated with the Project (**Appendix B**). The HRA focused on construction emissions at the Project site, which is considered a new but temporary source. The HRA focused on cancer risks, chronic health hazards, and $PM_{2.5}$ concentrations at residences located near the Project site.

Consistent with BAAQMD Guidelines, the following analysis assesses health risk and hazard impacts at sensitive receptors located in the vicinity of the Project site. Since the construction emissions associated with the Project would represent a new emissions source, the health risk and hazard impacts are analyzed at the receptor that would be exposed to the maximum risk, hazard, and $PM_{2.5}$ concentrations.

For construction activities, DPM exposure represents the primary health hazard. DPM is a complex mixture of chemicals and particulate matter identified by the State as a TAC with potential cancer and chronic non-cancer effects. DPM emissions would be generated by the operation of off-road construction equipment (e.g., excavators, loaders, cranes, graders) and on-road heavy-duty vehicles that burn diesel fuel. Although other exposure pathways exist (i.e., ingestion, dermal contact), the inhalation pathway is the dominant exposure pathway from DPM for both cancer risk and chronic non-cancer health effects. Consequently, this HRA only evaluates the inhalation cancer and chronic non-cancer effects of DPM inhalation.

A three-step process was used to estimate cancer risks and chronic health hazards of DPM exposure. The first step involved using the CalEEMod software program to estimate average annual diesel exhaust emissions during Project construction. The second step involved using the AERMOD dispersion model to convert emissions to maximum annual DPM concentrations. The dispersion modeling used average annual DPM emissions, receptor locations, emission sources, and meteorological data collected at the Norman Y. Mineta

San José Airport station, the station nearest to the Project site. For this Project, two separate sources were included in the dispersion modeling:

- One polygon area source representing the on-site construction equipment within the main Project area;[3] and
- Three area line sources representing heavy duty truck traffic to and from the Project site along Almaden Expressway, Coleman Road, and Winfield Boulevard to the extent of the modeling domain.

The above sources represent the worst case scenario from DPM emissions occurring at the Project's nearest receptor. Average emission rates from each of the above sources were separately simulated in the same model run to determine DPM concentrations. In order to identify the MEI for the Project in AERMOD, discrete cartesian receptors were placed to simulate the surrounding residences located in the 1,000-foot vicinity of the Project site. The BAAQMD does not require receptors to cover precise locations but rather a representative grid of sensitive areas; residential areas modeled were configured with a receptor grid placing of 50 meters by 50 meters. According to BAAQMD, fenceline receptors should only be employed if there are existing or reasonably anticipated future sensitive receptors that would be residing in that area (BAAQMD, 2012). It is not feasible for any future residential development to be constructed around Almaden Lake and therefore no fenceline receptors were required. Although Pioneer High School is outside of the 1,000-foot Project site radius, as a conservative approach, two additional discrete cartesian receptors were modeled to represent the exposure for both indoors the school buildings and outdoors in the school yard. The third step involved using the Office of Environmental Health Hazard Assessment (OEHHA) guidance to convert maximum concentrations to cancer risks and chronic health hazards (OEHHA, 2015). The results of the HRA are discussed in the impacts and mitigation measures section below.

Operations Emissions

Motor Vehicle Emissions

The City of San José would be responsible for maintenance of the new open park area, while anticipated maintenance activities for the District would include embankment and levee inspection and repair, sediment removal from the restored creek, levee settlement adjustment, restored vegetation maintenance and management along the restored creek and islands, lake water quality monitoring, and maintenance road grading and upkeep.

Maintenance of the new park area would be incorporated into existing City maintenance at the park and would not generate new traffic or emissions. Maintenance of the restoration plantings is estimated to require one additional truck trip would occur every two weeks for the first three years after construction of the Project. Maintenance of the new levee would require

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[3] Given the linear nature of pipeline construction, exposure to emissions from construction of the flow-through system water pipelines connecting Almaden Lake to Almaden Valley Pipeline to the south and the Los Alamitos Percolation Pond to the north would be less than two months at any given residence location; therefore, those emissions sources were included in the main polygon area source for the Project, rather than modelled as their own area sources.

visits by District crews a couple times a year. Embankment repair and levee settlement adjustment would only be required if necessary; the Project would be designed to be stable and not require such maintenance. Sediment removal is estimated to be needed only every ten years and would require a small work crew a week or two to complete the work.

Stationary Sources

The Project would establish a water pump station on the northern end of the lake containing two electric pumps. There would be indirect emissions from the electricity required to power the electric pump, which would be generated by existing power plants that are regulated by air district stationary source permits such that air quality standards would be attained/maintained.

Health Risk

Project operation would not result in the combustion of diesel fuel or other activities that would emit TACs. Therefore, there would be no TAC emissions generated or associated health risks from the Project's operation.

Impact Summary

Table 3.C-3 provides a summary of impacts to air quality.

TABLE 3.C-3
SUMMARY OF AIR QUALITY IMPACTS

Impact Statement	Construction	Operation
Impact 3.C-1: The Project would conflict with or obstruct implementation of the applicable air quality plan.	LSM	LSM
Impact 3.C-2: The Project would result in a cumulatively considerable net increase of a criteria air pollutant for which the SFBAAB is in non-attainment under applicable federal and state ambient air quality standards.	LSM	LS
Impact 3.C-3: The Project would expose sensitive receptors to substantial pollutant concentrations.	LSM	LS
Impact 3.C-4: The Project would not result in emissions that lead to odors affecting a substantial number of people.	LS	LS

LS = Less than significant
LSM = Less than significant with mitigation

Impacts and Mitigation Measures

Impact 3.C-1: The Project would conflict with or obstruct implementation of the applicable air quality plan. (Less than Significant with Mitigation)

Construction and Operation Impacts

The most recently adopted air quality plan for the Project area is the 2017 CAP. The 2017 CAP focuses on two closely-related goals: protecting public health and protecting the climate. The 2017 CAP is an update to the BAAQMD's 2010 Ozone Strategy to comply with

State air quality planning requirements. The 2017 CAP also serves as a multi-pollutant air quality plan to protect public health and the climate. The 2017 CAP control strategy includes revised, updated, and new measures in the three control measure categories: stationary sources, transportation, and buildings and energy.

2017 CAP Transportation Control Measure TR22, *Construction, Freight, and Farming Equipment*, appears to be the only measure applicable to the Project. It provides incentives for the early deployment of electric, Tier 3, and 4 off-road engines used in construction, freight, and framing equipment. Lack of compliance with this requirement would be considered a **significant impact** associated with conflict or obstruction of implementation of the applicable air quality plan. To avoid this impact the District and/or its construction contractors would be required to use off-road diesel construction equipment compliant with U.S. EPA Tier 4 non-road engine standards per **Mitigation Measure 3.C-1a (*U.S. EPA Tier 4 Engines*)**. Therefore, the Project as mitigated would be consistent with the intent of Transportation Measure TR22, and the impact would be **less than significant with mitigation**.

If the Project does not support the 2017 CAP goals, it would not be considered consistent with the 2017 CAP, resulting in a **significant impact**.

In addition to Mitigation Measure 3.C-1a, **Mitigation Measure 3.C-1b (BAAQMD Basic Construction Measures)** includes recommended measures to support 2017 CAP goals. Thus, Project-related construction emissions with mitigation measures incorporated would not conflict with the applicable air quality plan resulting in the less than significant impact.

Future maintenance of the Project, such as sediment removal and bank repair activities, would comply with the same mitigation measures to ensure they are consistent with applicable air quality plans, and be considered **less than significant with mitigation** for operations.

Mitigation Measures

Mitigation Measure 3.C-1a: *U.S. EPA Tier 4 Engines*. The Santa Clara Valley Water District and/or its construction contractors shall be required to use off-road diesel construction equipment compliant with U.S. EPA Tier 4 nonroad engine standards. Prior to the commencement of construction activities, the construction contractor and/or the Santa Clara Valley Water District shall prepare an equipment list that identifies each piece of off-road equipment to be operated at the Project site by its equipment identification number (EIN) and demonstrates that each piece of equipment meets U.S. EPA Tier 4 nonroad engine standards. The list shall be made available at the construction site and shall be updated when new or replacement construction equipment are brought to the site.

Mitigation Measure 3.C-1b: *BAAQMD Basic Construction Measures*. The Santa Clara Valley Water District and/or its construction contractors shall comply with the following applicable BAAQMD Basic Construction Mitigation Measures:

BAAQMD Basic Construction Measures

1. All exposed surfaces (e.g., parking areas, staging areas, soil piles, graded areas, and unpaved access roads) shall be watered two times per day.

2. All haul trucks and railcars transporting soil, sand, or other loose material off-site shall be covered.
3. All visible mud or dirt track-out onto adjacent public roads shall be removed using wet power vacuum street sweepers at least once per day. The use of dry power sweeping is prohibited.
4. All vehicle speeds on unpaved roads shall be limited to 15 mph.
5. All roadways, driveways, and sidewalks to be paved shall be completed as soon as possible. Building pads shall be laid as soon as possible after grading unless seeding or soil binders are used.
6. Idling times shall be minimized either by shutting equipment off when not in use or reducing the maximum idling time to 5 minutes (as required by the California airborne toxics control measure Title 13, Section 2485 of California Code of Regulations [CCR]). Clear signage shall be provided for construction workers at all access points.
7. All construction equipment shall be maintained and properly tuned in accordance with manufacturer's specifications. All equipment shall be checked by a certified visible emissions evaluator.
8. Post a publicly visible sign with the telephone number and person to contact at Santa Clara Valley Water District regarding dust complaints. This person shall respond and take corrective action within 48 hours. The BAAQMD's phone number shall also be visible to ensure compliance with applicable regulations.

Impact Significance After Mitigation: Less than Significant. The District and contractors would implement Mitigation Measures 3.C-1a (U.S. EPA Tier 4 Engines) and 3.C-1b (BAAQMD Basic Construction Measures) for construction and ground-disturbing maintenance activities. These measures would ensure that the Project fully complies with the 2017 CAP and other air quality plans.

Impact 3.C-2: The Project would result in a cumulatively considerable net increase of a criteria pollutant for which the SFBAAB is in non-attainment under applicable federal and state ambient air quality standards. (Less than Significant with Mitigation)

The BAAQMD thresholds of significance for construction and operation represent the levels at which a project's individual emissions of criteria air pollutants or precursors would result in a cumulatively considerable contribution to the SFBAAB's existing air quality conditions. If daily average construction or operation emissions, or annual operation emissions of criteria air pollutants or precursors would exceed these thresholds, a project would result in a cumulatively significant impact. As presented in the discussions below, the Project's construction emissions would exceed the applicable BAAQMD NO_x threshold, but the recommended Mitigation Measures 3.C-1a and 3.C-1b would reduce NO_x emissions to below this threshold. In addition, the Project's long-term operational emissions would not exceed the applicable thresholds. Therefore, the Project would not result in a cumulatively considerable net increase in any pollutants for which the SFBAAB is in non-attainment under applicable federal or state ambient air quality standards.

Construction Impacts

Criteria pollutant emissions of ROG, NO_X, PM_{10}, and $PM_{2.5}$ from construction equipment, worker trips, vendor trips, hauling trips, and locomotives associated with removed lake bed sediment via railroad would incrementally add to the regional atmospheric loading of these pollutants during construction of the Project. For this analysis, the Project's construction is conservatively assumed to occur over a period of approximately 24 months, commencing at the earliest in June 2021, and finishing in 2023. **Table 3.C-4** presents the estimated average daily construction exhaust emissions that would be associated with the Project.

TABLE 3.C-4
TOTAL AVERAGE DAILY CONSTRUCTION EMISSIONS

	Pounds/day			
Parameter	**ROG**	**NO_x**	**Exhaust PM_{10}**	**Exhaust $PM_{2.5}$**
On-site and Off-site Construction	6.73	90.53	2.21	2.09
Railroad Hauling	0.14	2.84	0.06	0.06
Total	6.87	93.37	2.28	2.15
BAAQMD Construction Threshold	54	54	82	54
Significant Impact?	No	Yes	No	No

NOTE: Refer to Appendix B for the emissions estimate calculations and all of the associated assumptions.

As shown in Table 3.C-4, estimated emissions of ROG, PM_{10}, and $PM_{2.5}$ would not exceed the applicable significance thresholds; however, exhaust emissions of NO_X would exceed the significance threshold, **resulting in a cumulatively considerable significant impact**.

Implementation of **Mitigation Measures 3.C-1a and 3.C-1b** as shown below, would be required to reduce construction NO_x emissions below the applicable threshold. Although implementation of Mitigation Measure 3.C-1b would reduce NO_x emissions through the minimization of idling times and proper engine maintenance and tuning, the demonstration of reducing Project construction NO_x emissions was quantified based on assumptions associated with Mitigation Measure 3.C-1a. In order to estimate these reductions, Tier 4 engines were selected for all construction equipment utilizing the mitigation screen in CalEEMod. The output was then converted into average daily emissions using the same methodology described above. The U.S. EPA has required that new engines in equipment manufactured in 2015 and beyond meet the Tier 4 non-road engine standards. The Project would commence construction no earlier than mid-2021 thus providing a high likelihood that equipment from this tier would be available for use.

Table 3.C-5 presents the average mitigated daily construction emissions estimates for the Project. Estimated emissions of ROG, NO_x, PM_{10}, and $PM_{2.5}$ would not exceed the applicable significance thresholds with implementation of **Mitigation Measures 3.C-1a and 3.C-1b**.

TABLE 3.C-5
TOTAL AVERAGE DAILY MITIGATED CONSTRUCTION EMISSIONS

Parameter	Pounds/day ROG	NO_x	Exhaust PM_{10}	Exhaust $PM_{2.5}$
On-site and Off-site Construction	2.50	44.36	0.28	0.27
Railroad Hauling	0.14	2.84	0.06	0.06
Total	2.64	47.20	0.34	0.33
BAAQMD Construction Threshold	54	54	82	54
Significant Impact?	No	No	No	No

NOTE: Refer to Appendix B for the emissions estimate calculations and all of the estimate assumptions.

In addition to exhaust emissions, emissions of fugitive dust would also be generated by Project-related construction activities associated with grading and earth disturbance, travel on paved and unpaved roads, and other construction related activities. With regard to fugitive dust emissions, the BAAQMD Guidelines focus on implementation of dust control measures rather than comparing estimated levels of fugitive dust to quantitative significance thresholds. Therefore, to reduce cumulatively considerable impacts related to emissions of fugitive dust associated with Project construction to a less than significant level, implementation of **Mitigation Measure 3.C-1b**, which includes the BAAQMD's applicable recommended fugitive dust control measures, would be required. Implementation of Mitigation Measures 3.C-1a and 3.C-1b would reduce the impact associated with exhaust emissions of NO_X and fugitive dust emissions to a less than significant level by minimizing idling times, ensuring proper engine maintenance and tuning, requiring use off-road diesel construction equipment compliant with U.S. EPA Tier 4 nonroad engine standards, and requiring implementation of BAAQMD's applicable recommended fugitive dust control measures. With implementation of Mitigation Measures 3.C-1a and 3.C-1b, Project construction would not result in a cumulatively considerable net increase of NO_X or fugitive dust emissions, and the impact would be **less than significant with mitigation**.

Operations Impacts

Future maintenance of the Project could include sediment removal and bank protection activities. Sediment removal is only anticipated to be needed once every ten years and would only last a few weeks in duration. Bank repair and levee settlement adjustment are not anticipated and would only be conducted as necessary. Earth moving activities, such as sediment removal and bank repair would be done consistent with Mitigation Measure 3.C-1a and 3.C.1b as discussed under Impact 3.C-1. The exact timing, equipment, and frequency of these events is unknown and cannot be quantified; however, they represent a small fraction of the emissions that would be generated during Project construction and would not appreciably increase overall emissions reported in Table 3.C-5.

The only other applicable operational activities associated with the Project, that do not occur presently, would be from occasional worker vehicle trips to the Project site in order to maintain the landscaping, during the first three years of the Project's operation, and to conduct levee inspections a few times a year. These infrequent maintenance activities and vehicle trips would be intermittent and would produce negligible emissions.

Ongoing operation of electric pumps at the Project site would not generate airborne emissions at the site and emissions resulting from the generation of electricity are subject to stationary source permits that ensure that air quality standards are attained/maintained. Therefore, operation period emissions from the Project would not be considered cumulatively considerable, and the associated impact would be **less than significant**.

Mitigation Measures

Implement Mitigation Measures 3.C-1a and 3.C-1b.

Impact Significance After Mitigation: Less than Significant. The District and contractors would implement Mitigation Measures 3.C-1a (U.S. EPA Tier 4 Engines) which requires the use of cleaner burning engines which would reduce the emission of NO_x to below the significance threshold established by BAAQMD and used for this analysis. Mitigation Measure 3.C-1b (BAAQMD Basic Construction Measures) in combination with 3.C-1a would minimize the generation and emission of dust during construction and maintenance consistent with BAAQMD guidance to less than significant levels.

Impact 3.C-3: The Project would expose sensitive receptors to substantial pollutant concentrations. (Less than Significant with Mitigation)

Construction Impacts

The various construction activities associated with the Project would generate exhaust emissions, including DPM—a known TAC. Exposure of sensitive receptors to TAC emissions could result in an elevated health risk. Under the Office of Environmental Health Hazard Assessment (OEHHA) Guidelines, DPM is used as a surrogate measure of carcinogen exposure for the mix of chemicals that make up diesel exhaust as a whole (OEHHA, 2015).

The HRA quantified cancer risks, chronic non-cancer health hazards, and average annual $PM_{2.5}$ concentrations for nearby receptors based on the Project's annual average PM_{10} emissions, and compared these to the BAAQMD's corresponding thresholds of significance (Appendix B). To evaluate cancer health impacts, the maximum incremental cancer risk from inhalation exposure to TACs was calculated following the guidelines established by OEHHA. Non-cancer health risk is based on hazard indices established by OEHHA for chronic (long-term) exposures. The annual average $PM_{2.5}$ concentration was calculated by multiplying the ratio of the Project's $PM_{2.5}$ to PM_{10} emissions by the annual PM_{10} concentration estimated using AERMOD.

Assuming that construction of the Project would occur over a 24-month period between 2021 and 2023, the annual average construction emissions associated with the Project was determined for the purpose of the HRA. It was assumed that the MEI in the vicinity of the Project site would be exposed to the annual average TAC concentrations throughout the construction period; however, during the actual construction process, the location of equipment would vary within the Project site, and TAC concentrations at the MEI would change. Discrete cartesian receptors described above, allowed for an examination of TAC concentrations throughout the vicinity of construction activities.

Construction-related emissions of DPM (using PM_{10} exhaust as a surrogate) associated with the Project were calculated using emissions rates derived from CalEEMod, as described under the Approach to Analysis section, above. This assumption is also conservative since DPM represents a portion of total particulate emissions from exhaust, but is consistent with regulatory guidance.

Annual average emission rates for the worst-case construction scenario were converted from pounds per day in CalEEMod to grams per second to estimate annual average concentrations which included the polygon area source and two lines sources. AERMOD was set up to assume a constant emission rate using 2009 through 2013 meteorological data, the latest years available, to determine a representative entire year of construction. Although a constant emission rate was assumed, the variable emissions scenario in AERMOD was utilized to accurately restrict construction emissions to only occur within daytime construction hours during weekdays. **Figure 3.C-2** shows the approximate location of the MEI receptor for cancer risk, non-cancer chronic risk, and annual average $PM_{2.5}$ concentration during the construction phase.

Figure 3.C-2
Approximate Location of MEI Receptor
during Project Construction

Once the Project's DPM concentration at the MEI was known, the ARB's HARP 2 RAST was used to derive both cancer and non-cancer chronic risks. Consistent with BAAQMD Guidelines, a 3-year exposure duration was utilized with exposure starting in the third trimester. The inclusion of this lifestage applies the most conservative weighting for exposures to account for increased sensitivity to carcinogens from late pregnancy through childhood known as an Age Specific Factor. As the MEI Receptor was identified as a residence, the OEHHA default breathing rates and fraction at time of residence for all age groups were also included.

Table 3.C-6 presents the health risk assessment results for the Project's construction period based on OEHHA calculation methodologies.

TABLE 3.C-6
PROJECT CONSTRUCTION HEALTH RISK ASSESSMENT RESULTS[a]

Parameters	Cancer Risk[b]	$PM_{2.5}$[c]	Chronic HI[d]
Maximally Exposed Individual Receptor (Resident)	48.4	0.22	0.15
BAAQMD Thresholds of Significance	**10**	**0.3**	**1.0**
Exceeds Threshold?	*Yes*	*No*	*No*

NOTE: Refer to Appendix B (Health Risk Assessment)

a The results represent the health risks associated with construction of the Project.
b Chances in 1 million.
c Particulate Matter of 2.5 microns or less concentration is expressed as annual average in micrograms per cubic meter (µg/m^3).
d Hazard Indices (HI) are dimensionless.

The maximum annual average $PM_{2.5}$ concentration would be up to 0.22 µg/m^3 at the MEI, which would not exceed the BAAQMD's significance threshold of 0.3 µg/m^3. TAC exposure from the Project's construction emissions would result in a maximum chronic hazard index of 0.15, which is below the BAAQMD thresholds of 1.0. However, based on the assessment methods described above, the MEI would be exposed to an incremental cancer risk of 48.4 in 1 million, which is above the BAAQMD threshold of 10 in 1 million. Therefore, overall Project-related construction activities would expose existing sensitive receptors to substantial pollutant concentrations; this is considered **a significant impact**.

Implementation of **Mitigation Measure 3.C-1a**, using the same calculation methodology as described in Impact 3.C-2, would reduce cancer risks from the Project's construction to below the applicable threshold. Implementation of **Mitigation Measure 3.C-1b**, would require that any mercury contaminated sediment removed from the Project site would be properly watered and covered during haul truck transport. This would minimize toxic airborne risks associated with fugitive dust from mercury contaminated soils or sediment from the Project. **Table 3.C-7** presents the health risk assessment results that would be associated with the Project's mitigated construction emissions.

TABLE 3.C-7
MITIGATED PROJECT CONSTRUCTION HEALTH RISK ASSESSMENT RESULTS[a]

Parameter	Cancer Risk[b]	$PM_{2.5}$[c]	Chronic HI[d]
Maximally Exposed Individual Receptor (Resident)	5.1	0.03	0.01
BAAQMD Thresholds of Significance	**10**	**0.3**	**1.0**
Exceeds Threshold?	*No*	*No*	*No*

NOTE: Refer to Appendix B (Health Risk Assessment)

[a] The results represent the health risks associated with construction of the Project.
[b] Chances in 1 million.
[c] Particulate Matter of 2.5 microns or less concentrations are expressed as annual average in micrograms per cubic meter (μg/m^3).
[d] Hazard Indices (HI) are dimensionless.

Based on the implementation of the mitigation described above, the MEI would be exposed to an incremental cancer risk of 5.1 in 1 million, which is below the BAAQMD threshold of 10 in 1 million. Overall, mitigated Project-related construction activities would not expose existing sensitive receptors to substantial pollutant concentrations.

In accordance with BAAQMD guidance for a complex source and using a conservative approach to evaluate the cumulative health risks from the Project, all TAC and $PM_{2.5}$ sources within a 0.25-mile radius of the Project boundary to the maximally exposed receptor were identified. According to the City of San José's Planning Division, there is currently one other construction project that would include installation of new park equipment at the existing Park on the corner of Almaden Expressway and Coleman Road that would occur in this radius during the Project's construction. The health risks at the MEI that would be associated with eight months of construction for this cumulative project are unknown, but is conservatively assumed to be the same or less than those that would be associated with the Project. Using the BAAQMD's Health Risk Screening and Distance Multiplier Tools, two existing TAC sources within the 0.25-mile radius were identified and their cancer and non-cancer chronic risks, and annual average $PM_{2.5}$ concentrations were calculated and included in **Table 3.C-8**. Refer to Appendix B for the detailed calculations and methods to derive these values.

Table 3.C-8 presents the cumulative health risk assessment results for the mitigated Project's construction period. Based on the assessment methods described above, the MEI would be exposed to an incremental cancer risk of up to 14.2 in 1 million, which is below the BAAQMD cumulative threshold of 100 in 1 million. The annual average $PM_{2.5}$ concentration at the MEI would be up to 0.12 μg/m^3, which is below the cumulative threshold of 0.8 μg/m^3. The chronic non-cancer hazard index would be up to 0.03, which is below the cumulative threshold of 10.0.

Implementation of Mitigation Measure 3.C-1a would reduce cancer risks from Project construction to below the applicable threshold by requiring use off-road diesel construction equipment compliant with U.S. EPA Tier 4 nonroad engine standards. In addition, implementation of Mitigation Measure 3.C-1b would ensure that there would be no significant toxic airborne risks associated with fugitive dust from mercury contaminated soils or sediment. The health risk impact would not be cumulatively considerable and the cumulative impact would be **less than significant with mitigation**.

TABLE 3.C-8
CUMULATIVE MITIGATED PROJECT HEALTH RISK ASSESSMENT RESULTS[a]

Source	Health Risks at the MEI		
	Cancer Risk[b]	**$PM_{2.5}$[c]**	**Chronic Hi[d]**
Project	5.1	0.03	0.01
City of San José Park Improvements at Coleman Road and Almaden Expressway	≤5.1	≤0.03	≤0.01
Santa Clara Valley Water District FID: 1961; Plant No.: 18379	1.9	<0.01	0.01
Coleman Road	2.1	0.05	N/A
Cumulative	≤14.2	≤0.12	≤0.03
BAAQMD Thresholds of Significance	**100**	**0.8**	**10.0**
Exceeds Threshold?	*No*	*No*	*No*

NOTE: Refer to Appendix B (Health Risk Assessment)

a The results represent the cumulative health risks associated with construction of the Project and all other sources of TAC and $PM_{2.5}$ emissions within a 0.25-mile radius of the Project. The Chronic HI for Coleman Road is not available (N/A).
b Chances in 1 million.
c Concentrations are expressed as micrograms per cubic meter ($\mu g/m^3$).
d Hazard indices (HI) are dimensionless.

Operation Health Risks

Future maintenance of the Project could include sediment removal and bank protection activities. Sediment removal is only anticipated to be needed once every ten years and would only last a few weeks in duration. Bank repair and levee settlement adjustment are not anticipated and would only be conducted as necessary. Other operations would include limited landscaping maintenance operations, levee inspections, and the operation of electric water pumps. Maintenance activities would occur rarely and for short durations that would not generate substantial TAC emissions. Other operations would result in the production of TAC emissions, or associated health risks from the Project's operation. Therefore, this impact is considered **less than significant**.

Mitigation Measures

Implement Mitigation Measures 3.C-1a and 3.C-1b.

Impact Significance after Mitigation: Less than Significant. The District and contractors would implement Mitigation Measures 3.C-1a (U.S. EPA Tier 4 Engines) which requires the use of cleaner burning engines which would reduce TAC emissions below the established threshold and Mitigation Measure 3.C-1b (BAAQMD Basic Construction Measures) to minimize the generation and emission of dust during construction.

Impact 3.C-4: The Project would not result in emissions that lead to odors affecting a substantial number of people. (Less than Significant)

Construction Emissions

The BAAQMD has developed a list of recommended odor screening distances for specific odor sources. If a proposed project would include the operation of an odor source, the screening distances should be used to evaluate the impact to existing sensitive receptors. The BAAQMD recommends that the screening distances be used as indicators to how much additional analysis would be required rather than the sole indicator of impact significance (BAAQMD, 2010). Off-road equipment and heavy duty trucks that would be used to construct the Project may generate emissions that lead to odors associated with combustion of diesel fuel. However, the BAAQMD does not have an odor screening distance for construction activity, and thus this methodology cannot be relied upon for this impact. As described in the Environmental Setting section above, there are sensitive receptors (e.g., residences, schools) in the immediate vicinity of the Project site.

Diesel construction emissions from the Project would be temporary, intermittent in nature, and spatially dispersed, and therefore associated odors would dissipate quickly. Odor impacts associated with diesel combustion during construction activities would be **less than significant**.

When the lake is drained during construction, organic materials would be temporarily exposed to the air. However, these are not anticipated to result in substantial emission of odors, because water levels would be drawn down below the organic layer on the lake bottom, allowing sediments to partially dry out, rather than stagnate and generate odors. Also, construction activities would result in the removal and/or covering of this layer as a facet of the Project, which would be completed early during the construction period, after the removal of water from the lake is complete. As a result, this impact is considered **less than significant**.

Operations Emissions

Operation of the Project would include management of the lake, including pumping needed to maintain lake levels, and periodic sediment removal, maintenance of landscaping, and other facilities. Pumping and periodic maintenance would not produce objectionable odors. The Project would generally improve water quality within the lake, resulting in reduced potential for in-lake processes to generate odors, in comparison to existing conditions. Therefore, operation of the Project is not expected to increase objectionable odors, and this impact is considered **less than significant**.

Mitigation Measures

None required.

3.C.5 References

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3.D Biological Resources

This section addresses effects to biological resources that may result from implementation of the Project. Analysis of biological resources addresses habitats within the Project footprint and adjacent habitats outside of these boundaries and uses the term “Study Area” to describe all of Almaden Lake and Park, small portions of Alamitos Creek and Guadalupe Creek, and upland staging areas. In instances where only the Project footprint is referenced, the term “Project site” is used within this section. The resources described in this section include vegetation communities, such as freshwater marsh and willow scrub; lacustrine; and mixed riparian forest and associated wildlife, wetlands, and special-status plants and wildlife (federal or state endangered, threatened, proposed, and candidate species; and state or local species of concern). Fisheries resources are addressed in Section 3.E.

As part of this analysis, this section identifies the federal, state, and local regulations pertaining to biological resources in the Study Area and the region. Information used in the preparation of this chapter was obtained from the California Department of Fish and Wildlife’s (CDFW’s) California Natural Diversity Database (CDFW, 2018a; 2019b), California Native Plant Society (CNPS) Electronic Inventory (CNPS, 2019), U.S. Fish and Wildlife Service (USFWS) list of federally threatened and endangered species known to occur in the Study Area (USFWS, 2019), a reconnaissance-level field survey conducted by ESA biologist Elizabeth Hill on November 10, 2015 (ESA, 2015), wetland delineations conducted by ESA biologists Stephanie Bishop and David Rodriguez on December 1, 2015 and May 24, 2016 (see Appendix C), Santa Clara Valley Water District technical memorandums pertaining to the Study Area, and standard biological literature.

3.D.1 Environmental Setting

Regional Setting

The Study Area is in the 170 square-mile Guadalupe River Watershed, less than two-miles northeast of the Santa Cruz Mountains and less than 15 miles south of the San Francisco Bay estuary. The Santa Cruz Mountains are part of California’s Coast Range and separate the San Francisco Bay Area from the Pacific Ocean along most of the San Francisco Peninsula. While much of the Coast Range remains undeveloped, the majority of the flat floodplain, including the Study Area, has been heavily urbanized (see Figure 2-1). Almaden Lake and its surrounding City parklands are in a residential neighborhood of San José, adjacent to Boulder Ridge Golf Club and near Guadalupe Oak Grove Park. An open space corridor characterized by oak woodland and grassland, located adjacent to the Study Area, extends from outside the Study Area, southeast, connecting the Santa Teresa hills and Santa Cruz Mountains. Further to the west, Guadalupe Creek flows from the Santa Cruz Mountain foothills to just north of Almaden Lake, while Alamitos Creek flows from the Santa Teresa hills into Almaden Lake from the south. Almaden Lake was created from a quarry site on Alamitos Creek. The confluence of Alamitos Creek with Guadalupe Creek, north of Almaden Lake, creates the Guadalupe River, which flows into San Francisco Bay approximately 20 miles downstream. Over time, both creeks have been heavily modified by urbanization.

Project Setting

Upland vegetation in the Study Area is generally landscaped or consists of nonnative grass, and a mix of native and nonnative shrub and tree species. The following descriptions provide further detail on the distinct habitat types and/or vegetation communities that can be found in the Study Area. These include: landscaped/developed, lacustrine, freshwater marsh and willow scrub, mixed riparian forest, and riverine (**Figure 3.D-1a** and **Figure 3.D-1b**). While these habitats exist in a continuum and can be interwoven, they are each a distinct habitat type with specific characteristics and jurisdictional implications.

Vegetative Communities and Wildlife Habitat Types

Lacustrine

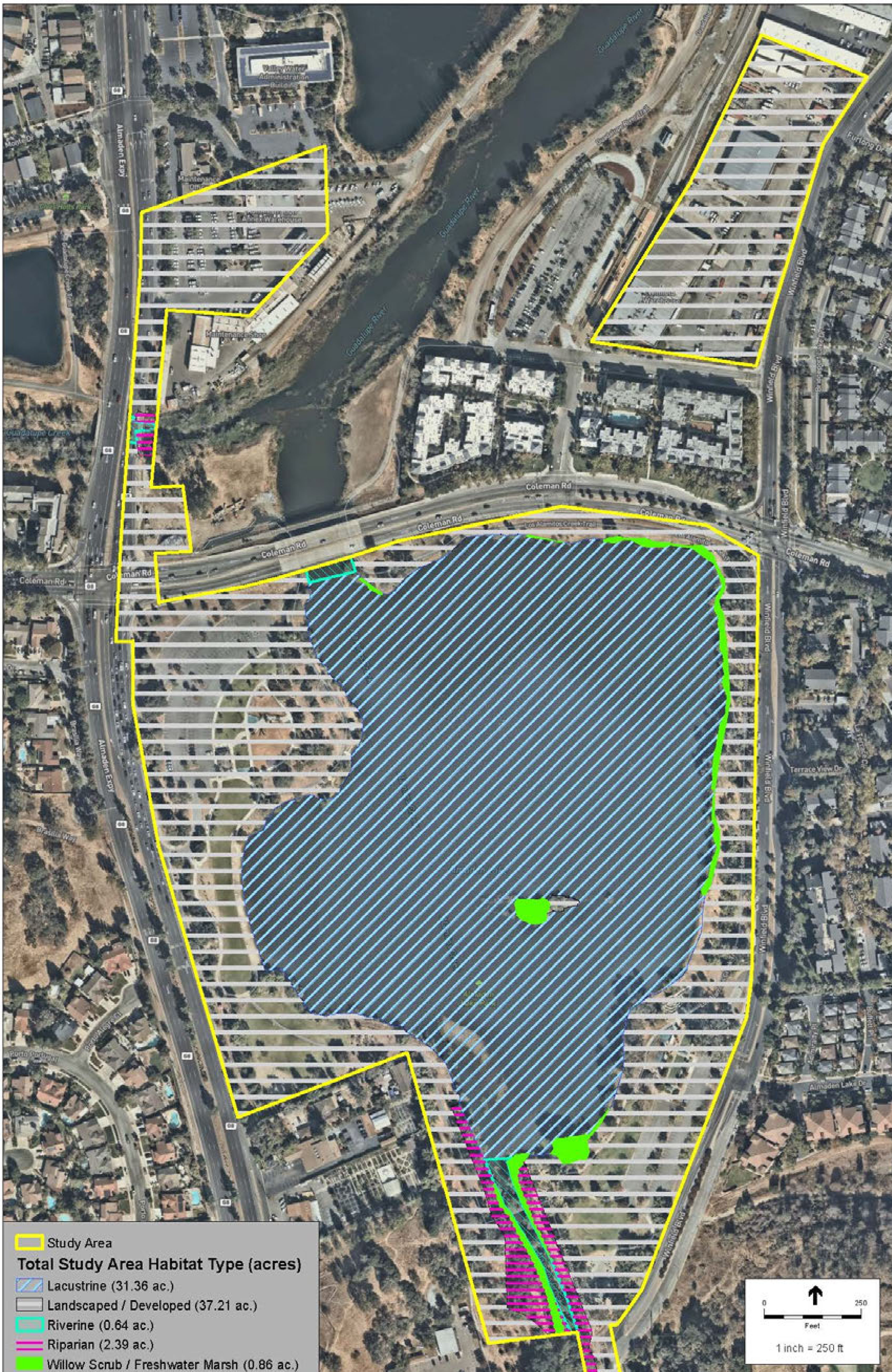
The waters of Almaden Lake are characterized as lacustrine habitat, which is defined as portions of permanent bodies of water that do not support emergent vegetation and that are not subject to tidal exchange. The steep banks of the lake preclude the establishment of wetland vegetation around much of the lake, as is typical of naturally formed lakes. Almaden Lake occupies approximately 32 acres of the overall 65-acre Almaden Lake Park.

The lake provides seasonal foraging opportunities and cover for waterbirds such as gull (*Larus* sp.), mallard (*Anas platyrhynchos*), great egret (*Ardea alba*), snowy egret (*Egretta thula*), great blue heron (*Ardea herodias*), common merganser (*Mergus merganser*), common moorhen (*Gallinula chloropus*), American coot (*Fulica americana*), double-crested cormorant (*Phalacrocorax auritus*), and Canada goose (*Branta canadensis*); in addition to other birds including red-winged blackbird (*Agelaius phoeniceus*), violet-green swallow (*Tachycineta thalassina*), and northern rough-winged swallow (*Stelgidopteryx serripennis*). Western pond turtle (*Actinemys marmorata* also referred to as *Emys marmorata*), a California Species of Special Concern, are known to occur in lake waters. Fish species that may be present in the lake are addressed in Section 3.E.

Although the lake provides habitat for birds, it provides adverse conditions for most aquatic species. Mercury-laden sediment from historic upstream mining is deposited in the lake, where the depth of the lake, seasonal stratification, and nutrient enrichment contribute to the methylation of mercury and other negative water quality conditions. Methylmercury is a strong neurotoxin that has bioaccumulated in Almaden Lake's fish, aquatic organisms, and wildlife that feed on them. In addition, the lake has high concentrations of coliform bacteria and is subject to seasonal blue-green algae blooms that degrade habitat for aquatic organisms and wildlife in and around the lake as well as those downstream in the Guadalupe River.

Landscaped/Developed

Maintained turf of Bermuda grass (*Cynodon dactylon*), recreational trails (paved and unpaved), roadways, and parking lots have been established in the majority of the Study Area, which do not support high quality vegetation or wildlife habitat. The Park also includes land that has been disturbed from historical quarry practices and has been reclaimed by grading, planted with turf grass species, and/or planted at a low to moderate density with native and nonnative ornamental shrubs and trees. Irrigation has been applied to the majority



SOURCE: Imagery (MapBox), 2018; ESA, 2019.

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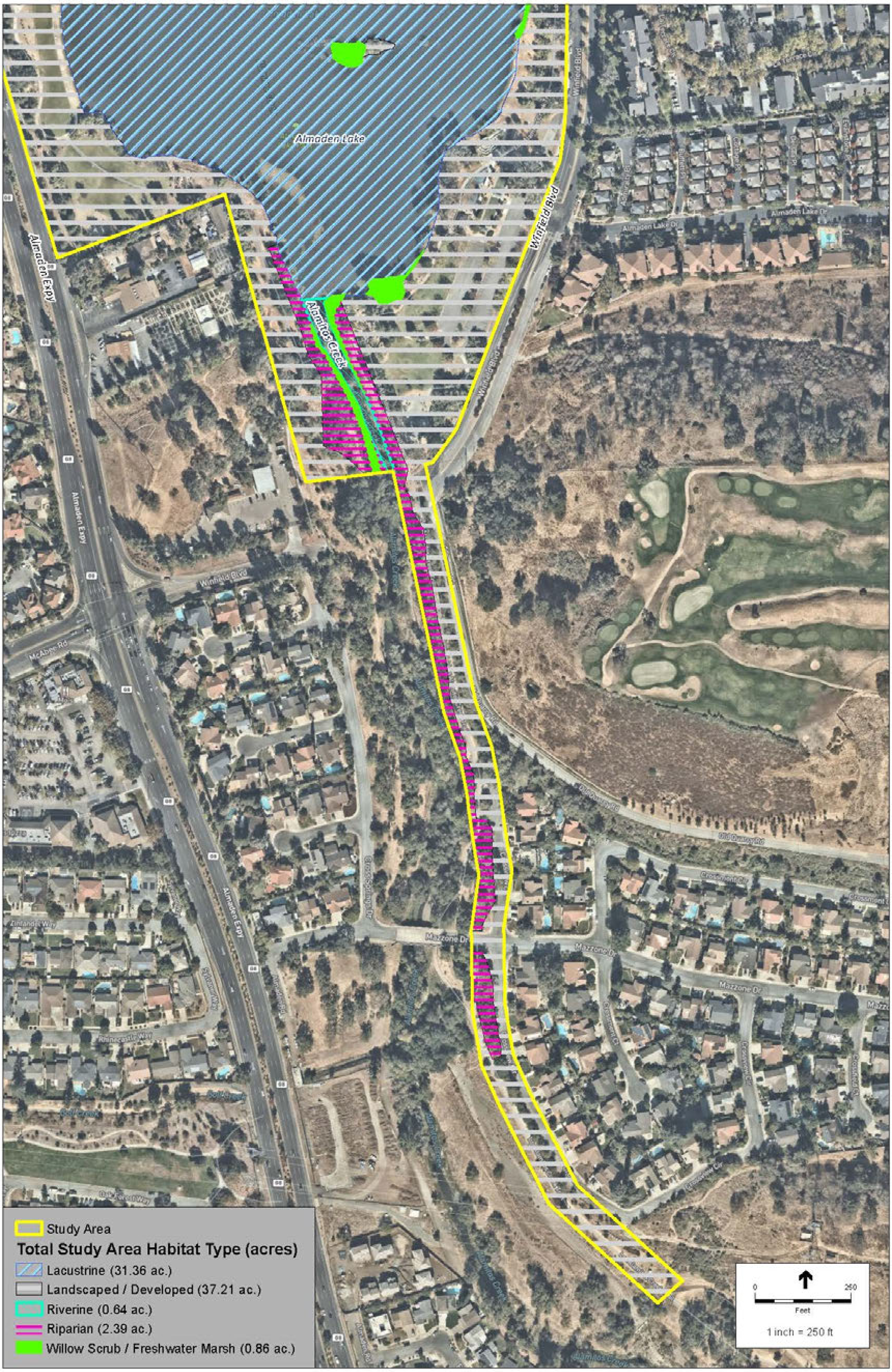
Figure 3.D.1a

Vegetation Communities and Habitat Types in the Project Study Area



SOURCE: Imagery (MapBox), 2018; ESA, 2019.

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Figure 3.D.1b
Vegetation Communities and Habitat Types in the Project Study Area

of the landscaped areas to encourage the establishment of planted trees and shrubs. Native vegetation species found in this community include western sycamore (*Platanus racemosa*), coast live oak (*Quercus agrifolia*), valley oak (*Quercus lobata*), and toyon (*Heteromeles arbutifolia*); while the majority of the vegetation consists of nonnative species such as blue gum (*Eucalyptus globulus*), red iron bark (*Eucalyptus sideroxylon*), Peruvian pepper (*Schinus molle*), maidenhair tree (*Gingko biloba*), and Mexican fan palm (*Washingtonia robusta*). The District has made efforts to remove invasive giant reed (*Arundo donax*) from the lake island and plant riparian vegetation; however, the presence of giant reed remains. Similarly, developed areas have been subject to intense or recurring disturbance, generally through soil compaction, paving, removal or alteration of native vegetation, or effects from historic quarry operations or maintenance operations. Generally, plant cover in these areas is scarce due to the lack of topsoil; however, the limited amount of vegetation present can be characterized by a small number of weedy and/or native plant species including yellow star thistle (*Centaurea solstitialis*), coyote brush (*Baccharis pilularis*), chamise (*Adenostoma fasciculatum*), wild oats (*Avena fatua*), and sweet fennel (*Foeniculum vulgare*).

Common avian wildlife found in landscaped and developed communities include Canada geese, western gulls (*Larus occidentalis*), red-breasted sapsucker (*Sphyrapicus ruber*), acorn woodpecker (*Melanerpes formicivorus*), western scrub-jay (*Aphelocoma californica*), yellow-rumped warbler (*Setophaga coronata*), mourning dove (*Zenaida macroura*), northern mockingbird (*Mimus polyglottos*), house finch (*Haemorhous mexicanus*), and lesser goldfinch (*Spinus psaltria*). Mammals commonly associated with the residential neighborhood surrounding the Study Area, include California ground squirrel (*Otospermophilus beecheyi*), striped skunk (*Mephitis mephitis*), raccoon (*Procyon lotor*), coyote (*Canis latrans*), and common bats, such as Mexican free-tailed bat (*Tadarida brasiliensis*) and Yuma myotis (*Myotis yumanensis*).

Freshwater Marsh and Willow Scrub

Freshwater marsh is the predominant vegetation type occurring on the fringes of Almaden Lake, including the island, Alamitos Creek, Guadalupe Creek, and Guadalupe River. This community is also found along the fringes of the peninsula gravel bar in the southern portion of Almaden Lake. It is dominated by herbaceous wetland plants including narrowleaf cattail (*Typha angustifolia*) and hardstem bulrush (*Schoenoplectus acutus*), and woody plants including mulefat (*Baccharis salicifolia*). Willow (*Salix* spp.) dominates the vegetation found on the lake island and can be found along the lake fringe with spearmint (*Mentha spicata*); otherwise, the lake fringe is mostly devoid of vegetation, except for the area in proximity to the mixed riparian forest (discussed below). Narrow bands of freshwater emergent wetland/willow scrub also occur along Alamitos Creek and include willow, mugwort (*Artemisia douglasiana*), and fringed willowherb (*Epilobium ciliatum*).

Great egrets, snowy egrets, and black-crowned night herons (*Nycticorax nycticorax*) have been observed nesting on the lake island while green herons (*Butorides virescens*) and Forster's tern (*Sterna forsteri*) are also known to nest in vegetation on the island and east side of the lake (Santa Clara Valley Audubon Society, 2014; Strong et al., 2004). Other species with the potential to migrate through, nest, or forage on the lake island include, spotted sandpiper (*Actitis macularius*), great-tailed grackle (*Quiscalus mexicanus*), and reptiles and amphibians such as western pond turtle, California toad (*Anaxyrus boreas halophilus*) and Sierran tree frog (*Pseudacris sierra*) (SCVAS, 2005).

Mixed Riparian Forest

Along Alamitos Creek and Guadalupe Creek, mixed riparian forest occurs from the edge of the creek to the upper banks. The riparian area is dominated by tall trees and some shrubs and herbs including, coyote brush, smilo grass (*Stipa miliacea*), Himalayan blackberry (*Rubus armeniacus*), sweet fennel, western sycamore, coast live oak, and Fremont cottonwood (*Populus fremontii*). Wildlife associated with this habitat include red-shouldered hawk (*Buteo lineatus*), red-tailed hawk (*Buteo jamaicensis*), belted kingfisher (*Megaceryle alcyon*), black phoebe (*Sayornis nigricans*), killdeer (*Charadrius vociferus*), western kingbird (*Tyrannus verticalis*), Bullock's oriole (*Icterus bullockii*), Vaux's swift (*Chaetura vauxi*), Anna's hummingbird (*Calypte anna*), common starling (*Sturnus vulgaris*), Lincoln's sparrow (*Melospiza lincolnii*), and song sparrow (*Melospiza melodia*).

Riverine

Alamitos Creek, Guadalupe Creek, and Guadalupe River are all perennial freshwater streams within the Study Area, classified as riverine habitat (Cowardin, et al, 1979) and jurisdictional Waters of the U.S. and of the state (ESA, 2016). The Project's riverine habitat occurs in association with the adjacent riparian habitat, and is contiguous to the lacustrine and fresh emergent wetland habitat. Water moss and algae are often found on and beneath the rocks in this community. Insects characteristically inhabit the riverine habitat, which also provides habitat for wildlife occurring in open water zones. In addition, waterbirds, insectivorous birds (swallows, swifts, flycatchers) and mollusks are commonly found in this community. See Section 3.E regarding fish species present within the Project's riverine habitat.

Special-Status Species

A number of species known, or with potential, to occur in the Study Area vicinity are protected pursuant to federal and/or State endangered species laws, or have been designated Species of Special Concern by the CDFW. In addition, Section 15380(b) of the California Environmental Quality Act (CEQA) *Guidelines* provides a definition of rare, endangered or threatened species that are not included in any listing.[1] Species recognized under these terms are collectively referred to as "special-status species." For the purposes of this EIR, special-status species include:

1. Species listed or proposed for listing as threatened or endangered under the federal Endangered Species Act (50 CFR 17.12 [listed plants], 17.11 [listed animals], and various notices in the Federal Register [FR] [proposed species]);
2. Species that are candidates for possible future listing as threatened or endangered under the federal Endangered Species Act (61 FR 40, February 28, 1996);

[1] For example, vascular plants listed as rare or endangered or as List 1 or 2 by CRPR are considered to meet Section 15380(b).

3. Species listed or proposed for listing by the State of California as threatened or endangered under the California Endangered Species Act (14 Cal. Code Regs. 670.5);
4. Species formerly designated by the USFWS as species of concern or species designated by the CDFW as species of special concern;[2]
5. Species designated as "special animals" by the state;[3]
6. Species designated as "fully protected" by the state (there are about 35, most of which are also listed as either endangered or threatened);[4]
7. Raptors (birds of prey), which are specifically protected by California Fish and Game Code Section 3503.5, thus prohibiting the take, possession, or killing of raptors and owls, their nests, and their eggs;[5]
8. Plants listed as rare or endangered under the California Native Plant Protection Act (California Fish and Game Code, Section 1900 et seq.);
9. Species that meet the definitions of rare and endangered under CEQA. CEQA Section 15380 provides that a plant or animal species may be treated as "rare or endangered" even if not on one of the official lists (CEQA Guidelines, Section 15380); and
10. Plants considered to be "rare, threatened or endangered in California" under the California Rare Plant Ranking system (CRPR) which include Rank 1A, 1B, 2A, and 2B as well as Rank 3 and 4[6] plant species.

Appendix C provides a list of the special-status species (and their regulatory status) that have been documented in the nine U.S. Geological Survey (USGS) quadrangles covering and surrounding the Study Area and that, therefore, have the potential to occur in the Project location and may be affected by the Project. This list was obtained from the California Natural Diversity Database (CDFW, 2019b), CNPS Electronic Inventory (CNPS, 2019), and the USFWS (2019). Based on a review of the biological literature of the region, recent

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[2] A California species of special concern is one that: has been extirpated from the state; meets the state definition of threatened or endangered but has not been formally listed; is undergoing or has experienced serious population declines or range restrictions that put it at risk of becoming threatened or endangered; and/or has naturally small populations susceptible to high risk from any factor that could lead to declines that would qualify it for threatened or endangered status.

[3] Species listed on the current CDFW "special animals" list (November 2018), which includes 904 species. This list includes species that CDFW considers "those of greatest conservation need." (CDFW, 2019)

[4] The "fully protected" classification was California's initial effort in the 1960s to identify and provide additional protection to those animals that were rare or faced possible extinction. The designation can be found in the Fish and Game Code.

[5] The inclusion of birds protected by Fish and Game Code Section 3503.5 is in recognition of the fact that these birds are substantially less common in California than most other birds, having lost much of their habitat to development, and that the populations of these species are therefore substantially more vulnerable to further loss of habitat and to interference with nesting and breeding than most other birds. It is noted that a number of raptors and owls are already specifically listed as threatened or endangered by State and federal wildlife authorities.

[6] Rank 3 plants may be analyzed under CEQA Guidelines Section 15380 if sufficient information is available to assess impacts to such plants. Factors such as regional rarity vs. statewide rarity should be considered in determining whether cumulative impacts to a Rank 4 plant are significant even if individual project impacts are not. CRPR Rank 3 and 4 may be considered regionally significant if, e.g., the occurrence is located at the periphery of the species' range, or exhibits unusual morphology, or occurs in an unusual habitat/substrate. For these reasons, CRPR Rank 3 and 4 plants should be included in the special-status species analysis. Rank 3 and 4 plants are also included in the CNDDB Special Vascular Plants, Bryophytes, and Lichens List. The current online published list is available at: http://www.dfg.ca.gov/biogeodata (CDFW, 2019a).

biological reports for the Study Area, and an evaluation of the Study Area's habitat conditions (ESA, 2015), ESA determined whether each species has a low, moderate, or high potential to occur in the Study Area.

Species with a low potential to occur are species whose current distribution or range does not include the Study Area, or species whose specific habitat requirements (e.g., tidal salt marsh) are not present. Species with a moderate potential to occur are those for whom suitable foraging or breeding habitat is present in the Study Area, even though the species has not been recently observed in the Study Area. A species was determined to have a high potential for occurrence if moderate to high quality habitat is present within the Study Area in addition to the area being included in the documented range of the species. Species observed or with a moderate to high potential to occur within the Study Area are discussed in detail below. Species documented by the CNDDB within three miles of the Study Area are shown in **Figure 3.D-2**.

Species Assessed in Detail

Of the special-status plants and animals presented in Appendix C, only the following species have a moderate to high potential to occur within the Study Area and are described in detail below:

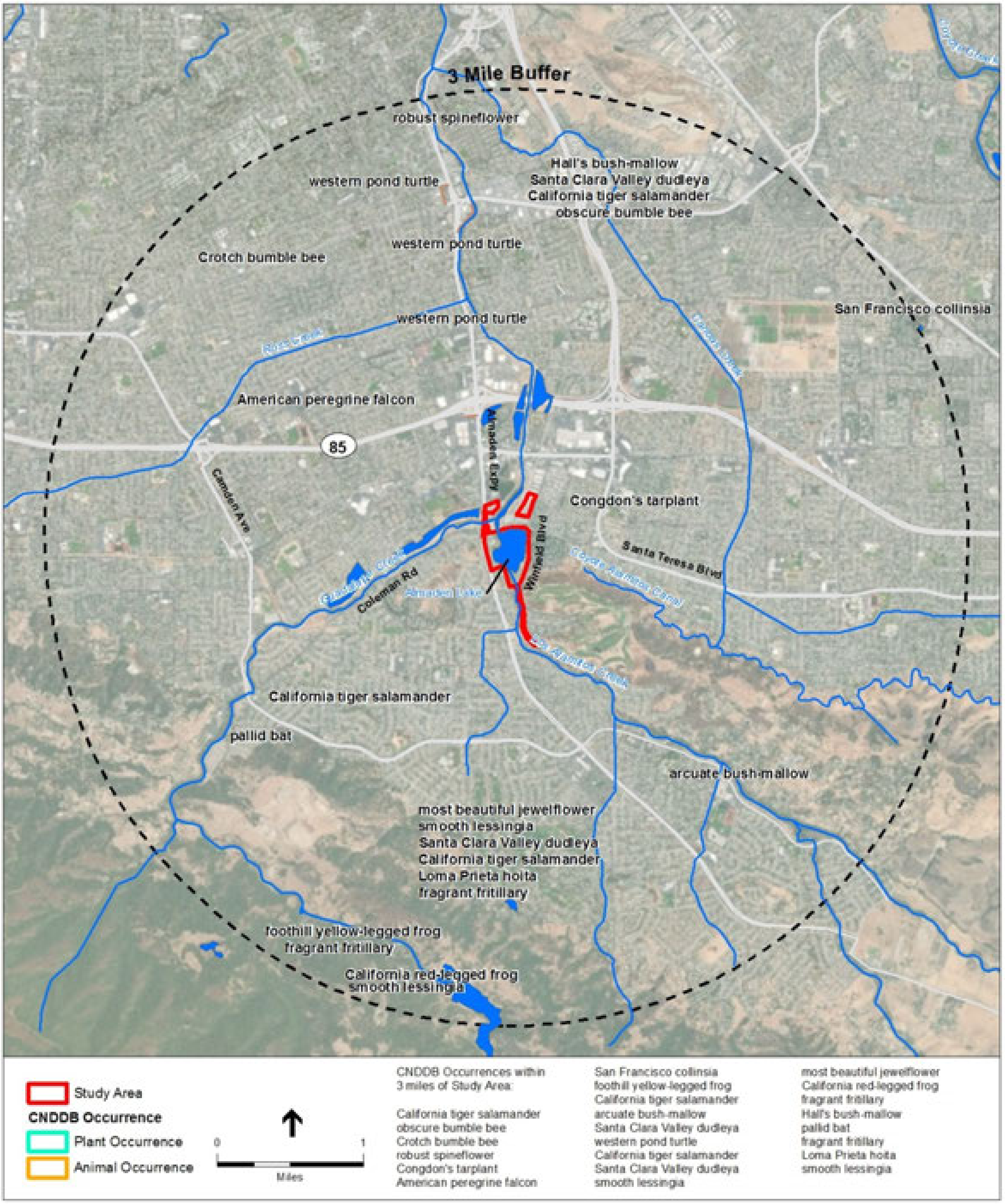
- herons and egrets nesting colonies
- Double-crested cormorant nesting colonies
- Tricolored blackbird
- Cooper's hawk
- Western pond turtle
- California red-legged frog
- Foothill yellow-legged frog
- Hoary bat
- Yuma myotis

Special-Status Plants

Thirty special-status plant species have been documented in the nine quadrangles covering and surrounding the Study Area (CDFW, 2019b; CNPS, 2019; USFWS, 2019) (see Appendix C), but none have been documented in the Study Area. Due to the historical industrial operations, development, and ongoing intensive human use of the Study Area, which have eliminated suitable habitat, no special-status plants are expected to occur in the Study Area and none were observed during the reconnaissance level field survey and wetland delineations conducted for this Project.

Special-Status Animals

Forty-one special-status animal species have been documented in the nine quadrangles covering and surrounding the Study Area (CDFW, 2019b; CNPS, 2019; USFWS, 2019), see Appendix C. Five of these are fish species discussed in Section 3E. Due to the historical industrial operations, development, and ongoing intensive human use of the Study Area, few special-status animals have the potential to occur in the Study Area, as noted above and discussed further below.



SOURCE: CDFW, 2018.

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Figure 3.D-2
CNDDB Species in the Project Area

Amphibians

California red-legged frog (*Rana draytonii*). The California red-legged frog is listed as federally threatened and as a California species of special concern. The Study Area does not occur within the USFWS-designated critical habitat for this species (USFWS, 2010). California red-legged frog reside in lowlands and foothills in or near permanent or semi-permanent water sources, such as lakes, stock ponds, and slow moving streams with deep pools and dense shrubs or emergent aquatic vegetation. Where water sources are not permanent, California red-legged frogs require access to dry-season upland aestivation habitat in the form of mammal burrows, soil cracks, or moist understory vegetation. Red-legged frogs require at least 11 weeks of permanent water after egg laying for larval development.

The nearest occurrence of the California red-legged frog is less than three miles away from the Study Area, in the vicinity of Guadalupe Reservoir. It would be difficult for California red-legged frog to disperse through the Study Area because it is dominated by heavily trafficked roads and human disturbance originating from Almaden Lake Park and the surrounding residential area, and operations and maintenance over the years within the Alamitos Creek corridor within Almaden Lake Park. Furthermore, due to alterations of natural habitat, the increased presence of nonnative predatory fish lowers the likelihood of California red-legged frog to occur within the immediate area of the lake. The species was not observed during the reconnaissance level field survey and wetland delineations conducted for this Project. However, the species still has the potential to use the riparian areas of Alamitos Creek and Guadalupe Creek outside of the Park boundaries but within the Study Area.

Foothill yellow-legged frog (*Rana boylii*). Foothill yellow-legged frog is a California Endangered Species Act (CESA) state candidate for listing as Threatened and is currently a California species of special concern found in or near shallow, flowing water in small to moderate-sized streams with at least some cobble sized substrate (Hayes and Jennings 1988), including valley-foothill hardwood, valley-foothill hardwood-conifer, valley-foothill riparian, ponderosa pine, mixed conifer, coastal scrub, mixed chaparral, and wet meadow types. Unlike most other *Ranid* frogs in California, this species is rarely encountered far from permanent water. Foothill yellow-legged frogs hunt aquatic, terrestrial, and flying invertebrates, spiders, and grasshoppers, and seek refuge in between rocks or leaf litter at the bottom of stream or creek beds when threatened (Nafis, 2015). Breeding and egg laying usually occur at the end of spring flooding and may commence any time from mid-March to May, depending on local water conditions (CDFG, 2000). Female frogs use the downstream side of rocks as protection for egg masses that are attached to pebbles, rocks, or submerged vegetation (Nafis, 2015). The foothill yellow-legged frog's historic range is in the Coast Ranges from the Oregon border south to the Transverse Mountains in Los Angeles County, in most of northern California west of the Cascade crest, and along the western flank of the Sierra south to Kern County. The nearest occurrence of the foothill yellow-legged frog to the Study Area was documented less than three miles away in the Rancho del Guadalupe area, downstream from Guadalupe Reservoir. The species was not observed during the reconnaissance level field survey and wetland delineations conducted for this Project. Suitable habitat for this species occurs in Alamitos and Guadalupe creeks; however, the presence of nonnative predatory fish has limited the likelihood of the presence of foothill yellow-legged in Almaden Lake.

Reptiles

Western pond turtle. The western pond turtle is a California species of special concern. It inhabits rivers, streams, natural and artificial ponds, and lakes. Two subspecies are recognized, the northwestern pond turtle that inhabits San Francisco Bay and to the north, while the southern western pond turtle is found south of San Francisco Bay (Lovich, n.d.). Optimal habitat seems to be characterized by the presence of adequate emergent basking sites, emergent vegetation, and the presence of suitable refugia in the form of undercut banks, submerged vegetation, mud rocks and logs (Holland, 1994). Adjacent terrestrial habitat is also critical for egg laying, winter refuge, and dispersal. Western pond turtles eat a wide variety of food items including, algae, various plants, snails, crustaceans (Lovich, n.d.). The species was not observed during the reconnaissance level field survey and wetland delineations conducted for this Project. While, this species is known to occur in the Guadalupe River portion of the Study Area (CDFW, 2019b), in the main channel, approximately 0.2 mile downstream of Almaden Expressway bridge, nonnative predatory fish and competition from nonnative turtles, such as red-eared slider (*Trachemys scripta elegans*) and yellow bellied slider (*Trachemys scripta scripta*) could limit the occurrence of western pond turtle within the Study Area.

Birds

Tricolored blackbird (*Agelaius tricolor*). Tricolored blackbirds, listed as a California species of special concern, are common throughout the Central Valley and coastal areas south of Sonoma County. The species breeds near fresh water, preferring emergent wetlands with tall, dense cattails or tules, but also in thickets or willow and blackberry. As described in the Santa Clara Valley Habitat Plan (SCVHP), urban wetlands and upland foraging habitats, such as those in the Study Area, may continue to accommodate tricolored blackbird breeding and foraging habitat (SCVHA 2012). Tricolored blackbirds feed in grassland and cropland habitats, and nests are usually located near fresh water, as well as hidden on the ground among low vegetation. Nest areas must be large enough to support a minimum of about 50 pairs (Grinnell and Miller, 1944). Research indicates black-crowned night heron nest predation of tricolored blackbirds is a threat to the species reproductive success and often causes significant losses of eggs and nestlings in colonies located in emergent wetland vegetation (Beedy, Sanders, and Bloom 1991). If tricolored blackbird nests are present, the likelihood of nest loss from predation remains an existing feasible threat. The nearest CNDDB occurrence of tricolored blackbird is over five miles south of the Study Area, near Calero Reservoir. The species was not observed during the reconnaissance level field survey and wetland delineations conducted for this Project. Although there is ongoing high levels of human disturbance and potential threat of nest predation in the Study Area, habitat that could support tricolored blackbird nesting colonies occurs within the Study Area.

Double-crested cormorant. Nesting colonies for the double-crested cormorant are on the CDFW Watch List and have previously been listed as a California species of special concern. A yearlong resident along the entire coast of California, the species is fairly common to locally very common along the coast and in fresh water ponds, estuaries and salt ponds. The species forages mainly on fish, crustaceans, and amphibians. It sometimes feeds cooperatively in flocks of up to 600, often with pelicans, and nests in colonies of a few to hundreds of pairs (Zeiner et al., 1990). Double-crested cormorants require undisturbed nest-sites adjacent to water, on islands or mainland. Double-crested cormorants have been observed in Almaden Lake and on the island, but have not been recently documented nesting in the Study Area.

Herons and Egrets. Nesting colonies of great egret, great blue heron, snowy egret, and black-crowned night-herons are all listed on the CDFW Special Animals list (CDFW, 2018a). Herons and egrets depend on large trees, dense types of vegetation, and man-made structures by tidal marsh, tidal mudflats, and non-tidal wetlands for nesting in spring and summer and for feeding year-round (PRBO, 2011). Important feeding sites also include creeks and ponds where they feed upon fish, small mammals, and invertebrates. Nest predation of herons and egrets is common among raccoons, feral cats, or ravens. As of 2014, snowy egret, great egret, and black-crowned night heron have been observed to nest on the island, while great blue heron have been known to nest on the island within the last seven years (SFBBO, 2013 and SFBBO, 2014; SCVAS, 2005).

Cooper's hawk (*Accipiter cooperi*). Nesting Cooper's hawks are on the CDFW Watchlist and are protected under Section 3503.5 of the California Fish and Game Code. Cooper's hawks range over most of North America and may be seen throughout California, most commonly as a winter migrant. Nesting pairs have declined throughout the lower-elevation, and more populated parts of the state. Cooper's hawk generally forage in open woodlands and wooded margins and nests in tall trees, often in riparian areas, such as those present in the Study Area. Cooper's hawk is known to nest locally in Bay Area urban neighborhoods. The species was not observed during the reconnaissance level field survey and wetland delineations conducted for this Project. The nearest CNDDB occurrence is documented less than five miles northwest of the Study Area.

Other Breeding and Migratory Birds. The Study Area provides habitat for several species of birds, with some species as year around residents, and others passing through along the Pacific Flyway during spring and fall migrations. Trees, shrubs, and banks of the creeks, rivers, and lake island within the Study Area provide habitat for a variety of birds, including green heron, red-tailed hawk, and red-shouldered hawk, as well as patches of habitat for potential use by migrants as stop-over sites. Several passerine species which readily utilize urban landscaping for nesting could also potentially nest in the Study Area.

As discussed below under the Regulatory Setting, most migratory birds are protected from harm by the federal Migratory Bird Treaty Act (MBTA) and most breeding birds in California are protected under the California Fish and Game Code (Section 3503).

Mammals

Special-status Bat Species. Underutilized buildings, bridges, or tree crevices in the project's Study Area may be potential roosting habitat for two Western Bat Working Group (WBWG)[7] priority bat species: Yuma myotis, Low-Medium Priority species, and hoary bat (*Lasiurus cinereus*), a WBWG Medium Priority species.

There were no signs of bat roosts, such as observations of actual bats, bat guano, bat urine staining, or sounds of roosting bats, in trees or buildings on the Project site during the November 10, 2015 reconnaissance survey performed by ESA (ESA, 2015). Despite the high-levels of human disturbance in the Study Area and distance to known occurrences, suitable roosting habitat for these bats could be found on man-made structures including the Coleman Road Bridge and culverts, in tree foliage, underneath the exfoliating bark of trees, and in tree cavities. The nearest occurrence of Yuma myotis is south of New Almaden, approximately six miles to the southeast of the Study Area. The nearest occurrence of the hoary bat is in San José, although, the exact location is undocumented.

Sensitive Natural Communities

Sensitive natural communities are designated as such by various resource agencies, such as the CDFW, or in local policies and regulations, and are generally considered to have important functions or values for wildlife and/or are recognized as declining in extent or distribution, and are considered threatened enough to warrant some sort of protection. For example, many local agencies in California consider protection of oak woodlands important, and federal, state, and most local agencies also consider wetlands and riparian habitat as sensitive communities. CDFW tracks communities it believes to be of conservation concern through its List of California Terrestrial Communities and the CNDDB, and these communities are typically considered special-status for the purposes of CEQA analysis. Due to the developed nature of the Study Area as described above, no terrestrial sensitive or special-status natural communities, other than riparian areas (discussed above), are present (CDFW, 2018b).

Wetlands and Other Jurisdictional Waters

ESA conducted a wetland delineation of the Study Area on December 1, 2015 and May 24, 2016 (see Appendix C). A total of 32.48 acres (1,414,829 square feet) of potentially jurisdictional Waters of the U.S[8]. were documented within the delineation Study Area which includes Alamitos Creek, Almaden Lake, Guadalupe Creek, and Guadalupe River.

7 The Western Bat Working Group (WBWG) is comprised of agencies, organizations and individuals interested in bat research, management and conservation from the 13 western states and provinces. One of WBWG's goals is to facilitate communication among interested parties and reduce risks of species decline or extinction. The WBWG status of bat species is provided on the CNDDB Special Animals List. Taxa on these lists are reviewed for inclusion in the CNDDB Special Animals List, but are not automatically included.

8 Existing Waters of the State are the same as Waters of the U.S. in the Project footprint.

3.D.2 Regulatory Setting

This subsection briefly describes federal, state, and local regulations, permits, and policies pertaining to biological resources and wetlands as they apply to the Project.

Federal Regulations

Federal Endangered Species Act

Under the Federal Endangered Species Act (FESA), the Secretary of the Interior and the Secretary of Commerce jointly have the authority to list a species as threatened or endangered (16 United States Code [USC] 1533(c)). Pursuant to the requirements of FESA, a federal agency reviewing a proposed project within its jurisdiction must determine whether any federally listed threatened or endangered species may be present in the project area and determine whether the proposed project may affect or "take" such species. In addition, the agency is required to consult with the USFWS and/or the National Marine Fisheries Service (NMFS) to determine whether the project is likely to jeopardize the continued existence of any species listed under FESA or result in the destruction or adverse modification of critical habitat (see below) designated for such species (16 USC 1536(3)). Consultation with either the USFWS or NMFS would be required for the project since the U.S. Army Corps of Engineers (Corps) will need to issue a permit for the project. During consultation, the potential for take would be determined and, if take is expected to occur, the necessary conditions to allow the issuance of an incidental take permit would be imposed.

Areas of habitat considered essential to the conservation of a listed endangered or threatened species may be designated as critical habitat, which is protected under FESA. There is no critical habitat designated in the Study Area.

Federal Migratory Bird Treaty Act

The federal MBTA (16 USC, Section 703, Supp. I, 1989) prohibits pursuit, take or attempt to take, killing, possessing, selling, or trading in migratory birds except in accordance with regulations prescribed by the Secretary of the Interior. This act applies to whole birds, parts of birds, and bird nests and eggs. On December 22, 2017, the U.S. Department of the Interior redefined "incidental take" under the MBTA such that, "the MBTA's prohibition on pursuing, hunting, taking, capturing, killing, or attempting to do the same applies only to direct and affirmative purposeful actions that reduce migratory birds, their eggs, or their nests, by killing or capturing, to human control" (USDOI, 2017).[9] The USFWS subsequently provided similar guidance on April 11, 2018 (USFWS, 2018). Thus, the federal MBTA definition of "take" does not prohibit or penalize the incidental take of migratory birds that results from actions that are performed without motivation to harm birds. This interpretation

[9] Note that birds and their nests are separately protected by State law; specifically, Fish and Game Code sections 3503 and 3503.5, which respectively prohibit the unlawful destruction of nests and eggs; and the unlawful take of birds-of-prey or their eggs. Hence, the MBTA guidance does not alter the State protection of active bird nests and eggs.

differs from the prior federal interpretation of "take", which prohibited all incidental take of migratory birds, whether intentional or incidental.

Birds that are covered by provisions of the MBTA and could be expected to be present in the Study Area include the green heron, black-crowned night heron, Cooper's hawk, red-tailed hawk, among others.

Federal Clean Water Act

Section 404 of the Clean Water Act (CWA) regulates Waters of the U.S., which includes wetlands and other waters of the U.S. For purposes of federal jurisdiction, wetlands are "areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support (and do support, under normal circumstances) a prevalence of vegetation typically adapted for life in saturated soil conditions" (33 CFR 328.3[b] and 40 CFR 230.3). Under normal circumstances, the federal definition of wetlands requires three wetland identification parameters be present: wetland hydrology, hydric soils, and hydrophytic vegetation. Examples of federally jurisdictional wetlands include freshwater marsh, seasonal wetlands, and vernal pool complexes that have a hydrologic link to other Waters of the U.S. (see definition below for "other Waters of the U.S."). The Corps is the responsible agency for Section 404 of the CWA, while the U.S. Environmental Protection Agency (USEPA) has overall responsibility for the CWA. As discussed in more detail below, the Regional Water Quality Control Board (RWQCB) regulates Waters of the U.S. under Section 401 of the CWA.

Section 404 of the federal CWA (33 U.S.C. 1251–1376) prohibits the discharge of dredged or fill material into Waters of the U.S., including wetlands, without a permit from the Corps. Section 401 of the CWA requires that Corps-permit applicants also obtain state certification that the activity associated with the permit will comply with applicable state effluent limitations and water quality standards.

In addition to wetlands, other waterbodies and features are regulated under federal and state law. "Other Waters of the U.S." refers to those aquatic features that are regulated by the CWA but are not wetlands, and are defined under the CWA at 33 CFR 328.4. Examples of "other Waters of the U.S." include rivers, creeks, intermittent and ephemeral channels, ponds, and lakes, such as Almaden Lake.

Prior to any creek diversion, draining of lake, levee construction, island creation and expansion, the Project would need to obtain necessary permits for these impacts, including a Section 404 of the CWA permit from the Corps and RWQCB Section 401 Water Quality Certification. Also see Section 3.K, Hydrology and Water Quality for further discussion on this topic.

State Regulations

California Endangered Species Act

Under the CESA, CDFW maintains a list of threatened species and endangered species (California Fish and Game Code Section 2070). CDFW also maintains a list of "candidate species," which are species that CDFW has formally recognized as being under review for addition to either the list of endangered species or the list of threatened species. CDFW also maintains lists of "Species of Special Concern." Pursuant to the requirements of CESA, an agency reviewing a proposed project within its jurisdiction must determine whether any state-listed endangered or threatened species may be present in the project area and determine whether the proposed project will have a significant impact on such species. In addition, CDFW encourages informal consultation on any proposed project that may affect a candidate species. During consultation, the potential for take would be determined and, if take is expected to occur, the terms of an incidental take permit would be developed.

California Fish and Game Code Sections 1602, 3503, 3511, 4150, 4700, 5050, and 5515

Under Sections 1600–1616 of the California Fish and Game Code, the CDFW regulates activities that would substantially divert, obstruct the natural flow of, or substantially change rivers, streams, and lakes through the issuance of a lake or Streambed Alteration Agreement (LSAA). The jurisdictional limits of the CDFW are defined in Section 1602 of the Fish and Game Code as the "bed, channel, or bank of any river, stream, or lake", although jurisdiction is often interpreted to include adjacent riparian vegetation as well. Activities that would "deposit or dispose of debris, waste, or other material containing crumbled, flaked, or ground pavement where it may pass into any river, stream, or lake" are prohibited by the CDFW unless a LSAA is issued. Any work within channels with a clear bed and banks, such as Alamitos Creek or Guadalupe Creek, falls under CDFW jurisdiction and requires a LSAA.

Under Section 3503 of the California Fish and Game Code, it is unlawful to take, possess, or needlessly destroy the nest or eggs of any bird, except as otherwise provided by this code or any regulation made pursuant thereto. Section 3503.3 of the California Fish and Game Code prohibits take, possession, or destruction of any raptor (birds of prey) in the orders Falconiformes (hawks) or Strigiformes (owls), or of their nests and eggs. Any loss of fertile eggs or nesting raptors, or any activities resulting in nest abandonment, would constitute a significant impact.

The State Fish and Game Code Section 4150 states that all non-game mammals or parts thereof may not be taken or possessed except as otherwise provided in the code or in accordance with regulations adopted by the commission. This Section applies to all bat species.

CDFW Fully Protected Species may not be taken or possessed at any time without a permit from CDFW (Section 3511 Birds, Section 4700 Mammals, Section 5050 Reptiles and Amphibians, and Section 5515 Fish).

State Regulation of Wetlands and Other Waters

The State Water Resources Control Board (SWRCB) and the Regional Water Quality Control Boards (RWQCBs) (together "Boards") are the principal state agencies with primary responsibility for the coordination and control of water quality. Waters of the state of

California are defined as "any surface water or groundwater, including saline waters, within the boundaries of the state" (California Water Code §13050(e)) and include all federally jurisdictional waters. Waters of the state are broadly construed to include both public and private waters in natural and artificial channels (SWRCB, 2008).

In the Porter-Cologne Water Quality Control Act (Porter-Cologne), the California Legislature declared that the "state must be prepared to exercise its full power and jurisdiction to protect the quality of the waters in the state from degradation..." (California Water Code §13000). Porter-Cologne grants the Boards the authority to implement and enforce the water quality laws, regulations, policies, and plans to protect the groundwater and surface waters of the state. The RWQCB has regulatory authority over wetlands, including those that are "isolated" and therefore not considered federally jurisdictional. Impacts to waters of the state require a project proponent to obtain a Waste Discharge Permit (for non-federally-jurisdictional waters) and/or a CWA Section 401 certification (for federally jurisdictional waters, as in the case of the required Corps permit). The enforcement of the state's water quality requirements is not solely the purview of the Boards and their staff. Other agencies (e.g., the CDFW) have the ability to enforce certain water quality provisions in state law. The Boards must certify that a Corps permit action meets state water quality objectives (CWA Section 401).

The State Water Resources Control Board (State Water Board) adopted a State Wetland Definition and Procedures for Discharges of Dredged or Fill Material to Waters of the State (Procedures), for inclusion in the forthcoming Water Quality Control Plan for Inland Surface Waters and Enclosed Bays and Estuaries and Ocean Waters of California. The Procedures consist of four major elements: (1) a wetland definition; (2) a framework for determining if a feature that meets the wetland definition is a water of the state; (3) wetland delineation procedures; and (4) procedures for the submittal, review and approval of applications for Water Quality Certifications and Waste Discharge Requirements for dredge or fill activities. The Office of Administrative Law approved the Procedures on August 28, 2019 and the Procedures will be effective May 28, 2020.

The RWQCB Water Quality Control Plan for the San Francisco Bay Basin Plan is the San Francisco Bay RWQCB's master water quality control planning document. It designates beneficial uses and water quality objectives for waters of the State, including surface waters and groundwater. Although Almaden Lake is generally referred to as a separate water body from Alamitos Creek, the lake is not listed in the Basin Plan. The beneficial uses of Alamitos Creek, including preservation of rare and endangered species (RARE) and wildlife habitat (WILD), apply to the lake because it is part of the creek. Resolution R2-2008-0089 established new water quality objectives, total maximum daily loads, and an implementation plan for mercury in the Guadalupe River Watershed, including the Study Area.

California Native Plant Protection Act

State listing of plant species began in 1977 with the passage of the California Native Plant Protection Act (NPPA), which directed CDFW to carry out the legislature's intent to "preserve, protect, and enhance endangered plants in this state." The NPPA gave the California Fish and Game Commission the power to designate native plants as endangered or rare and to require permits for collecting, transporting, or selling such plants. The CESA expanded upon the original NPPA and enhanced legal protection for plants. The CESA established threatened and endangered species categories, and grandfathered all rare animals—but not rare plants—into the act as threatened species. Thus, there are three listing categories for plants in California: rare, threatened, and endangered.

Local Plans and Policies

Santa Clara Valley Habitat Plan

The Santa Clara Valley Habitat Plan (SCVHP) (SCVHA, 2012) provides a framework for promoting the protection and recovery of natural resources, including endangered species, while streamlining the permitting process for planned development, infrastructure, and maintenance activities. The SCVHP provides Endangered Species Act and California Endangered Species Act compliance for specific activities within the SCVHP area, which includes the Project area. The SCVHP is administered by the Santa Clara Valley Habitat Agency and is a regional partnership between six local partners (the County of Santa Clara, Santa Clara Valley Transportation Authority, Santa Clara Valley Water District, and the cities of San José, Gilroy, and Morgan Hill) and two Wildlife Agencies (CDFW and USFWS). The SCVHP identifies and preserves land that provides important habitat for endangered and threatened species. The land preservation is both to mitigate for the environmental impacts of planned development and public infrastructure operations and maintenance activities as well as to enhance the long term viability of endangered species. The SCVHP includes conditions on covered activities, to avoid and minimize take on covered species and to help meet goals for high quality regional habitat protection. Avoidance and minimization measures pertaining to specific relevant Conditions are referenced below.

City of San José Municipal Code

The City of San José provides for the protection of trees in the Municipal Code (Code) Sections 13.32 and 13.44.220. The Code outlines permit requirements for any tree-related work (removal, planting or pruning). Removal of trees from City of San José Parks Department jurisdiction requires the posting of a courtesy notice to the public and review by the City Arborist's Office (Code Section 13.44.220). The Study Area, outside the Parks Department jurisdiction, may support street trees considered protected in accordance with the San José Municipal Code.

13.28.310 - Pruning or removal of street tree - Permit required.

A. Except as provided in this section, it shall be unlawful for any person to prune or remove any street tree, or do any construction work or activity that may affect the critical root zone of a street tree, without a permit issued by the director.

B. Each permit to prune or remove a street tree shall contain the following information:

    1. Name of permit applicant;

    2. Time period in which to complete the action specified or required in the permit;

3. Type and species of the replacement street tree to be purchased by permittee, at permittee's expense, and to be planted, if applicable;
4. Description of the pruning, if applicable; and
5. Location of removal of the street tree and replanting of the street tree or location of street tree to be pruned.

C. The director shall issue a permit to remove a street tree only if at least one of the following criteria is met:

1. The street tree is in a hazardous condition or imminently hazardous condition.
2. The type, species, or location of the street tree is in conflict with a community forest master plan adopted by the city council or the street tree policy, guidelines, and best practices published by the director.
3. The street tree interferes with high tension electrical lines and the interference cannot be corrected by topping the street tree.
4. The street tree has caused extensive concrete damage and the concrete has been replaced more than once in the preceding ten years.
5. The street tree has done extensive sewer system damage that cannot be resolved by any other reasonable means.
6. The street tree is in conflict with an approved development permit for the adjacent property or right-of-way pursuant to Title 20 of this Municipal Code.

13.44.220 - Damaging park property - Prohibited acts designated.

Unless authorized in writing by the director of the department of recreation, parks and community services to do so, no person shall:

A. Pick, saw, chop, carve, cut, remove or damage any flowers, seeds, bark, branches, twigs, leaves or blossoms of any tree, plant, shrub, vine, bush or other vegetation in any park of the city;

B. Drive any nail, screw, bolt or staple into, or attach any wire, rope or other fastening device to any tree or plant in any park of the city;

C. Mark, deface, damage, displace or remove any building, bridge, table, chair, bench, fireplace, barrier, fence, railing, paving or paving material, water pipe or light, or any sign, notice or placard, whether temporary or permanent, or any cultural, natural or historic artifact, or monument stake, post or other boundary marker, or any other structure, equipment, facility or property, or part or appurtenance thereof whatsoever, in or from any park of the city;

D. Cut or remove any sand, wood, turf, grass, gravel, stone or timber in or from any park of the city, or make any excavation by any tool, equipment, blasting or by any other means in any park of the city;

E. Paint, erect, mark, post or fasten on or to any tree, shrub, fence, wall, building, monument or other property in any park any poster, bill, advertisement, inscription, sign or display. The provisions of this subsection shall not apply to any such thing that is authorized or required to be so placed by the director;

F. Take or operate a vehicle upon or over any lawn or landscaping in any park of the city. City will determine repair or replacement costs in event of damage.

City of San José Envision Plan (2011)

The *Envision San José 2040 General Plan* sets forth a vision and a comprehensive road map to guide the City's continued growth through the year 2040. The following policies within the Plan relate to biological resources potentially affected by the Project.

> **ER-2.1.** Ensure that new public and private development adjacent to riparian corridors in San José are consistent with the provisions of the City's Riparian Corridor Policy Study and any adopted Santa Clara Valley Habitat Conservation Plan / Natural Communities Conservation Plan (HCP/NCCP).
>
> **ER-2.4.** When disturbances to riparian corridors cannot be avoided, implement appropriate measures to restore, and/or mitigate damage and allow for fish passage during construction.
>
> **ER-2.5.** Restore riparian habitat through native plant restoration and removal of nonnative/invasive plants along riparian corridors and adjacent areas.
>
> **ER-4.1.** Preserve and restore, to the greatest extent feasible, habitat areas that support special-status species. Avoid development in such habitats unless no feasible alternatives exist and mitigation is provided of equivalent value.
>
> **ER-4.3.** Prohibit planting of invasive nonnative plant species in natural habitats that support special-status species.
>
> **ER-5.1.** Avoid implementing activities that result in the loss of active native birds' nests, including both direct loss and indirect loss through abandonment, of native birds. Avoidance of activities that could result in impacts to nests during the breeding season or maintenance of buffers between such activities and active nests would avoid such impacts.

3.D.3 Impacts and Mitigation Measures

Significance Criteria

The CEQA Guidelines indicate that proposed project activities would have a significant effect on biological resources if they would:

(a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the CDFW or USFWS.

(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 CDFW or USFWS.

(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?

(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?

Approach to Analysis

Avoidance and Minimization Measures Incorporated into the Project

Avoidance and minimization measures are those parameters that have been built into the design of the Project and are committed to as part of Project implementation. These measures are included in the Project Description (Section 2.E.1) of this report, but where appropriate, the specific measures related to the impact evaluations are also summarized below.

The following avoidance and minimization measures are contained in the District's Best Management Practices (BMP) Handbook (SCVWD, 2014), and have been incorporated into the Project, as feasible and appropriate. These measures would help to reduce the intensity of impacts to terrestrial biological resources associated with the Project, in accordance with District policy.

SCVWD's Best Management Practices (BMP) Handbook

BI-3. Remove Temporary Fills

BI-5. Avoid Impacts to Nesting Migratory Birds

BI-6. Avoid Impacts to Nesting Migratory Birds from Pending Construction

BI-7. Minimize Impacts to Vegetation from Survey Work

BI-8. Chose Local Ecotypes Of Native Plants and Appropriate Erosion-Control Mixes

HM-8. Ensure Proper Vehicle and Equipment Fueling and Maintenance

WQ-9. Use Seeding for Erosion Control, Weed Suppression, and Site Improvement

Similarly, the following Conditions and Avoidance and Minimization Measures from the SCVHP are incorporated into the Project. These measures, along with the Aquatic Avoidance and Minimization Measures listed in Table 6.2 of the SCVHP, are intended to protect endangered species and natural resources during activities permitted under the SCVHP; a comprehensive discussion of these measures is presented in Appendix C – Santa Clara Valley Habitat Plan.

Santa Clara Valley Habitat Plan Conditions

Condition 1. Avoid Direct Impacts on Legally Protected Plant and Wildlife Species

Condition 4. Avoidance and Minimization for In-Stream Projects

Condition 5. Avoidance and Minimization Measures for In-Stream Operations and Maintenance

Condition 11. Stream and Riparian Setbacks

Condition 12. Wetland and Pond Avoidance and Minimization

Condition 17. Tricolored Blackbird

Santa Clara Valley Habitat Plan Avoidance and Minimization Measures

5. Invasive plant species removed during maintenance will be handled and disposed of in such a manner as to prevent further spread of the invasive species.

13. Personnel shall use the appropriate equipment for the job that minimizes disturbance to the channel bed and banks. Appropriately-tired vehicles, either tracked or wheeled, shall be used depending on the situation.

15. Timing of work in streams that supports a significant number of amphibians will be delayed until metamorphosis occurs to minimize impacts to the resource. Listed species not covered by the Habitat Plan will not be relocated without the appropriate permits and authorizations from the correct agencies.

30. Vegetation control and removal in channels, on stream banks, and along levees and maintenance roads shall be limited to removal necessary for facility inspection purposes, or to meet regulatory requirements or guidelines.

31.1 When conducting vegetation management, retain as much understory brush and as many trees as feasible, emphasizing shade-producing and bank-stabilizing vegetation. Carry out the activity in such a manner as to minimize impacts to the natural community present and encourage regrowth of the community structure appropriate to the site.

31.2 If riparian vegetation is to be removed with chainsaws, consider using saws currently available that operate with vegetable-based bar oil.

49. The project or activity must be designed to avoid the removal of native riparian vegetation, where feasible. If the removal native of riparian vegetation is necessary, the amount shall be minimized to the amount necessary to accomplish the required activity and comply with public health and safety directives. Impacts to nonnative vegetation that is determined to be providing unique habitat value (such as shading, foraging habitat, or nesting area) shall be avoided and minimized in the same manner as native vegetation.

50. If levee reconstruction requires the removal of vegetation that provides habitat value to the adjacent stream (e.g., shading, bank stabilization, food sources, etc.), then the project will include replacement of the vegetation/habitat that was removed during reconstruction unless it is determined to be inappropriate to do so by the relevant resource agencies (e.g., CDFW and USFWS).

68. Stabilize stockpiled soil with geotextile or plastic covers. Materials that may entrap reptiles and amphibians, such as mono-filament erosion control materials, shall be avoided.

71. Preserve existing vegetation to the extent possible.

80. All personnel working within or adjacent to the stream setback (i.e., those people operating ground-disturbing equipment) will be trained by a qualified biologist in

these avoidance and minimization measures and the permit obligations of project proponents working under this Plan.

84.1 Appropriate erosion control measures (e.g., fiber rolls, filter fences, vegetative buffer strips) will be used on site to reduce siltation and runoff of contaminants into wetlands, ponds, streams, or riparian vegetation. Erosion control measures will be placed between the outer edge of the buffer and the project site.

84.2 Fiber rolls used for erosion control will be certified as free of noxious weed seed.

84.3 Filter fences and mesh will be of material that will not entrap reptiles and amphibians.

86. Topsoil removed during soil excavation will be preserved and used as topsoil during revegetation when it is necessary to conserve the natural seed bank and aid in revegetation of the site.

89. The potential for traffic impacts on terrestrial animal species will be minimized by adopting traffic speed limits.

90. All trash will be removed from the site daily to avoid attracting potential predators to the site. Personnel will clean the work site before leaving each day by removing all litter and construction-related materials.

91. To prevent the spread of exotic species and reduce the loss of native species, aquatic species will be netted at the drain outlet when draining reservoirs or ponds to surface waters. Captured native fish, native amphibians, and western pond turtles will be relocated if ecologically appropriate. Exotic species will be dispatched.

92. To minimize the spread of pathogens all staff working in aquatic systems (i.e., streams, ponds, and wetlands)—including site monitors, construction crews, and surveyors—will adhere to the most current guidance for equipment decontamination provided by the Wildlife Agencies at the time of activity implementation.

93. When accessing upland areas adjacent to riparian areas or streams, access routes on slopes of greater than 20% should generally be avoided. Subsequent to access, any sloped area should be examined for evidence of instability and either revegetated or filled as necessary to prevent future landslide or erosion.

95. To minimize entrapment of animals on job sites, the project biologist will survey the work area at the close daily activities to identify and remediate any potential areas or conditions that might trap animals. Examples of such include pits, trenches or pipes that animals can fall into or perforated pipes or netting that can cause entanglement.

103. Unless otherwise indicated in an Executive Directive issued by the Habitat Agency, for example a directive to address plant pathogens, (103.1) all disturbed soils will be revegetated with native plants, grasses, seed mixtures, or sterile nonnative species suitable for the altered soil conditions upon completion of construction. (103.2) Local watershed native plants will be used if available. If sterile nonnative species are used for temporary erosion control, native seed mixtures must be used in subsequent treatments to provide long-term erosion control and slow colonization by invasive nonnatives. (103.3) All disturbed areas

that have been compacted shall be de-compacted prior to planting or seeding. (103.4) Cut-and-fill slopes will be planted with local native or non-invasive plants suitable for the altered soil conditions.

105. Vegetation and debris must be managed in and near culverts and under and near bridges to ensure that entryways remain open and visible to wildlife and that passage through the culvert or bridge remains clear.

107. On streams managed for flood control purposes, when stream reaches require extensive vegetation thinning or removal (e.g., when the channel has been fully occluded by willows or other vegetation), removal will be phased so that some riparian land cover remains and provides some habitat value.

No Impact Significance Determinations

Of the resources considered under criteria (a), no special-status plant species have been documented in areas impacted by the Project and none are expected to occur in the Study Area. Therefore, the Project would not impact special-status plant species and no further discussion is warranted.

Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan. The Project is in the area covered by the SCVHP and as a covered project is required to comply with all provisions of the plan including applicable conditions and avoidance and minimization measures from Table 6-2 of the SCVHP in Appendix C, as feasible and appropriate. For example, the Project would adhere to *Condition 1: Avoid Direct Impacts on Legally Protected Plant and Wildlife Species* and *Condition 17: Tricolored Blackbird* by conducting pre-construction surveys and ensuring compliance with regulations addressing species or impacts not covered by the SCVHP, as well as measures adopted during construction such as the requirement that personnel be trained by a qualified biologist if they are conducting ground-disturbing activities in or adjacent to wetlands and ponds; and installation of erosion control measures. Exceptions to SCVHP measures would only be exercised if the avoidance and minimization measure would not be appropriate for the activity, or field data collected at the site or in comparable areas demonstrate the avoidance and minimization measure would not benefit wildlife or reduce impacts on natural communities. For example, due to the in-water nature of the Project, stream avoidance is not feasible; however, Project design requirements and measures would be implemented to avoid and minimize impacts to Alamitos Creek upstream and downstream of the Study Area.

Therefore, the Project would not conflict with the SCVHP.

Impact Summary

Table 3.D-1 provides a summary of biological resource impacts and by implementation phase (construction and operations).

TABLE 3.D-1
SUMMARY OF BIOLOGICAL RESOURCES IMPACTS

Impact Statement	Construction	Operation
Impact 3.D-1: Construction or operation of the Project would have a substantial effect on special-status birds, common nesting migratory birds and raptors, and roosting bats in the Study Area.	LSM	LS
Impact 3.D-2: Construction or operation of the Project would not have a substantial effect on California red-legged frog, foothill yellow-legged frog, and western pond turtle in the Study Area.	LS	LS
Impact 3.D-3: The proposed Project would not have a substantial adverse effect on riparian communities.	LS	LS
Impact 3.D-4: The Project would not have substantial adverse effects on jurisdictional wetlands, other Waters of the United States and Waters of the State.	LS	LS
Impact 3.D-5: The Project would not interfere substantially with the movement of any native resident or migratory wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites.	LS	LS
Impact 3.D-6: The Project would conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance.	LSM	NI

NI = No impact
LS = Less than significant
LSM = Less than significant with mitigation

Impacts and Mitigation Measures

Impact 3.D-1: Construction or operation of the Project could have a substantial effect on special-status birds, common nesting migratory birds and raptors, and roosting bats in the Study Area. (Less than Significant with Mitigation)

Construction Impacts

Tricolored blackbird. Project activities, such as earthwork, excavation, dewatering of Almaden Lake and Alamitos Creek diversion, pipeline installation, could affect tricolored blackbird breeding colony sites, if present, indirectly through increased fugitive dust, noise, vibrations, visual disturbance, or human activity from construction personnel. Other indirect impacts that could affect these species during construction would occur from the short-term loss of island vegetation, such as tule, cattail, and willow, during re-contouring of the existing island.

Although individuals may pass through the Study Area on a migratory basis, nesting colonies (not individuals) of tricolored blackbirds are unlikely to be present during the time of project construction. No tricolored blackbirds were observed during the 2015 reconnaissance-level field survey for the Project and there are no other records of colonies in the Study Area. The Project's distance to the nearest nesting colony is over five miles away indicating tricolored blackbirds have not historically used Almaden Lake as a colony nesting ground. In addition, existing predators in and around Almaden Lake such as black-crowned night heron, likely contribute to the improbable presence of a tricolored blackbird colony.

While presence of a nesting colony is unlikely, impacts on tricolored blackbird nesting colonies would be reduced through adherence to District BMP BI-5 Avoid Impacts to Nesting Migratory

Birds and BI-6 Avoid Impacts to Nesting Migratory Birds from Pending Construction. Construction would also be subject to SCVHP (Appendix BIO) Condition 17: Tricolored Blackbird. Implementation of Condition 17: Tricolored Blackbird, would ensure the Project would avoid or minimize impacts on tricolored blackbird nesting colonies, if present, by requiring pre-construction focused surveys for the species and establishing no work buffer zones around active nests, if identified. The application of the above District BMPs and SCVHP conditions and measures would ensure impacts to tricolored blackbird nesting colonies are **less than significant**.

Other Nesting Migratory Birds and Common and Special-Status Raptors. Great egret, snowy egret, great-blue heron, and black-crowned night heron are known to nest within the Study Area, specifically on the island in the lake. Known and potential suitable nesting habitat for double-crested cormorants is located within the north, south, and east areas of Almaden Lake Park and adjacent riparian areas. Common migratory birds and common and special-status raptors, including Cooper's hawk, northern harrier, red-tailed hawk, red-shouldered hawk, and green heron have the potential to nest in the Study Area's park trees and shrubs, riparian corridor, and on the lake island. Direct impacts to nests in mature trees, such as oak and eucalyptus, could occur from the removal of trees, vegetation on the island, riparian corridor, and general Almaden Lake parklands. Noise and visual disturbance generated from creek diversion and lake dewatering, site excavation and earthwork, construction of the levee, islands, and park could indirectly disturb nesting within the Study Area resulting in nest abandonment.

The District implements BMP BI-5, Avoid Impacts to Nesting Migratory Birds, and BI-6, Avoid Impacts to Nesting Migratory Birds from Pending Construction, to determine if active nests are located with the Project footprint. These measures, together with existing state and federal regulations reduce the intensity of impacts on nesting migratory birds and raptors. However, the loss or disturbance of an active nest would be a **significant impact**.

Implementation of **Mitigation Measure 3.D-1a: Nesting Bird Protection Measures** would ensure that the Project would have a **less than significant impact** on nesting birds by establishing no work buffer zones around active nests identified on or near the Project area.

Roosting Bats. The Project has the potential to directly and indirectly affect Yuma myotis, a WBWG[10] Low-Medium priority species, and hoary bat, a WBWG Medium priority species, during construction activities. Under the California Fish and Game Code, the following activities are prohibited and would be considered a significant impact: (1) destruction of an occupied, non-breeding bat roost, resulting in the death of bats; (2) disturbance that causes the loss of a maternity colony of bats (resulting in the death of young); or (3) destruction of hibernacula[11] (although hibernacula are generally not formed by bat species in the Bay Area due to sufficiently high temperatures year-round). Maternity roosts are those that are occupied

10 Western Bat Working Group (WBWG) is composed of agencies, organizations, and individuals interested in bat research, management, and conservation from the 13 western states and provinces. Species are ranked as High, Medium, or Low Priority in each of 10 regions in western North America.

11 Hibernaculum (plural hibernacula) refers to the winter quarters of a hibernating animal.

by pregnant females or females with non-flying young. Non-breeding roosts are day roosts without pregnant females or non-flying young.

Direct disturbance could result from tree removal, or roost destruction by any other means. Indirect disturbance to bat roosts could result from construction-associated noise or vibration, or increased human activity in the area. Increased noise, vibration, lights or the reconfiguration of large objects can lead to the disturbance of roosting bats, which may lead to behavioral alterations. Human disturbance can also lead to a change in humidity, temperature, or the approach to a roost that could force the bats to change their mode of egress and/or ingress to a roost. Although temporary, such disturbance can lead to the abandonment of a maternity roost, which in most cases would be a significant impact (H.T. Harvey & Associates, 2004).

Although there is an existing high level of disturbance in the Project vicinity originating from the roadways and recreational and maintenance activities in Almaden Lake Park, suitable roosting habitat could be present in the dense foliage along the riparian corridors of Alamitos Creek and Guadalupe Creek. Construction activities, such as tree removal, could directly or indirectly destroy bat roosts or disturb maternity colonies, a **significant impact**.

Impacts to roosting bats as a result of construction would be reduced to **less than significant** through adherence to **Mitigation Measure 3.D-1b (Protective Measures for Bats)**. These measures would require a preconstruction survey of structures possessing suitable bat roosting habitat in the Project area, and the establishment of an adequate construction buffer to prevent inadvertent disturbance of active roosts.

Operational Impacts

Special-status and Common Migratory Birds and Raptors, and Roosting Bats. Creation of foraging and nesting habitat along the restored Alamitos Creek floodplain, levee, and new and expanded lake islands would improve conditions for special status and common migratory birds and raptors and roosting bats. Maintenance activities during the establishment phase of wetland and riparian vegetation would adhere to District BMP BI-5 (Avoid Impacts to Nesting Migratory Birds) and SCVHP Avoidance and Minimization Measures and be similar to current and ongoing vegetation management, including weeding, and debris removal. As such, impacts on special-status and nesting common migratory birds and raptors resulting from the incremental increase in maintenance activity is **less than significant**.

Mitigation Measures

Mitigation Measure 3.D-1a: *Nesting Bird Protection Measures*. The District and/or its contractor(s) shall implement the following during construction of the Project:

- Removal of trees and scrub vegetation shall occur outside the bird nesting season (February 1 to August 31), to the extent feasible.
- If removal of trees and vegetation cannot be fully accomplished outside of nesting season, a qualified biologist shall conduct preconstruction nesting surveys within

seven days prior to the start of such activities or after any construction breaks of 10 days or more. Surveys shall be performed for the Study Area and suitable habitat within 250 feet of the project site to locate any active raptor (birds of prey) nests or rookeries.

- If active nests are located during the preconstruction bird nesting survey, the qualified biologist shall evaluate if the schedule of construction activities could affect the active nests and the following measures shall be implemented based on their determination:
  - If construction is not likely to affect the active nest, it may proceed without restriction; however, a biologist shall regularly monitor the nest to confirm there is no adverse effect and may revise their determination at any time during the nesting season. In this case, the following measure would apply.
  - If construction may affect the active nest, the biologist shall establish a no disturbance buffer in consultation with CDFW. Typically, these buffer distances are 50 feet for passerines and between 300 feet for raptors. These distances may be adjusted depending on the level of surrounding ambient activity (e.g., if the project area is adjacent to a road or active trail) and if an obstruction, such as a building, is within line-of-sight between the nest and construction. For bird species that are federally and/or state-listed sensitive species (i.e., fully protected, endangered, threatened, species of special concern), a District or City representative, supported by the qualified biologist, shall coordinate with the USFWS and/or CDFW regarding modifications to nest buffers, prohibiting construction within the buffer, modifying construction, or removing or relocating active nests that are found on the site.
  - Any birds that begin nesting within the project area and survey buffers amid construction activities are assumed to be habituated to construction-related or similar noise and disturbance levels. Qualified biologist, shall coordinate with the USFWS and/or CDFW and determine if no work exclusion zones shall be established around active nests in these cases.

Mitigation Measure 3.D-1b: *Protective Measures for Bats*. The District shall engage a qualified biologist to conduct a habitat assessment for suitable bat roost habitat features, followed by a preconstruction survey(s) of the Project area as needed in order to locate active colonies and/or special-status species, conducted in an appropriate timeframe in advance of initiation of tree trimming or removal, or disturbance to other potential roost features, and to plan work accordingly to avoid or minimize impacts. The preconstruction survey should include at a minimum: a) identification of potential direct and indirect Project-related disturbing activities; b) locations of potential roost habitat features; c) species identification and locations of active bat colonies or special status bats within or adjacent to the Project area, along with estimated numbers when possible; and d) a description of protective measures to be implemented prior to construction. No Project-related activities that could disturb active roosts shall proceed prior to the completed surveys.

Should special-status bats be found in trees or structures to be disturbed under the Project, or it is determined by a qualified biologist that Project activities would result in significant impacts to bats, the following measures shall be implemented:

- Removal of trees shall occur when bats are active, approximately between the periods of March 1 to April 15 and August 15 to October 15; outside of bat maternity roosting season (approximately April 15 – August 31); and outside of months of winter torpor (approximately October 15 – February 28), to the extent feasible.

- If removal of trees or disturbance to other roost features during the periods when bats are active is not feasible and active bat roosts being used for maternity or hibernation purposes are found within or in the immediate vicinity of the Project area where tree removal or other disturbance is planned, an appropriate no-disturbance buffer, determined by a qualified biologist, shall be established around the roost sites until they are determined to be no longer active by a qualified biologist. If special-status bats are identified, CDFW shall be contacted for further guidance.
- The qualified biologist shall be present onsite to monitor during tree or habitat feature disturbance if active bat roosts are present.
- Removal of trees containing or suspected to contain active bat roosts shall be removed under the supervision of the qualified biologist on the second day of a two-day removal process. Trees shall be removed through a two-phase process to significantly change the roost conditions by trimming branches during the first phase, causing bats, if present, to abandon the roost at night, before completely removing the tree on the second day. Trees with active roosts shall be removed only when no rain is occurring or is forecast to occur for three days, and when daytime temperatures are at least 50˚F.
- If there are significant impacts to bat roosting habitat (e.g., maternity roosts or hibernacula of sensitive or special -status species, or large non-maternity roost sites of sensitive species, or any number of special status species) due to project activities, a qualified biologist experienced in successful bat mitigation techniques shall develop a Bat Avoidance Plan including adequate buffer zones and/or other requirements to minimize the impact to the roosting site.

Significance after Mitigation: Less than Significant. The District will implement BMP BI-5, SCVHP Avoidance and Minimization Measures, and Mitigation Measure 3.D-1a, which taken together require the District and contractors to survey for nesting birds and establish adequate construction buffer areas to minimize impacts to nesting birds during construction. Mitigation Measure 3.D-1b ensures that surveys are conducted for bats and construction buffers are established as warranted. These measures ensure that impacts to special status species are reduced to a less than significant level.

Impact 3.D-2: Construction or operation of the Project would not have a substantial effect on California red-legged frog, foothill yellow-legged frog, and western pond turtle in the Study Area. (Less than Significant)

Construction Impacts

California Red-Legged Frog and Foothill Yellow-Legged Frog. The majority of the Study Area does not include suitable breeding features for California red-legged frog and foothill yellow-legged frog; however, the Alamitos Creek and Guadalupe River riparian corridors could support migration and foraging opportunities. Marginal habitat in shallow waters and emergent aquatic vegetation for these special-status frog species is present in the creek and riparian communities in the northern and southern portions of the Study Area.

As mentioned above, the nearest occurrence of the California red-legged frog and foothill yellow legged frog is less than three miles south of the Study Area in the vicinity of Guadalupe Reservoir. Based on known occurrences (CDFW, 2019b) and habitat suitability, California red-legged frog and foothill yellow-legged frog are largely absent from the portions of the Santa Clara Valley floor that have been heavily impacted by urban development, such as the surroundings of the Study Area. Furthermore, the general lack of high quality instream riparian habitat in the majority of the Study Area coupled with the isolation from known populations due to human disturbance reduces the potential for California red-legged frog and foothill yellow-legged frog to occur within the Study Area.

Construction would be subject to SCVHP Avoidance and Minimization Measures which are designed to minimize impacts to California red-legged frog and foothill yellow-legged frogs. These measures include preconstruction surveys, biological training, decontamination practices, monitoring of construction activities that may impact suitable frog habitat, and upholding regulatory agency permit obligations.

Given the low potential for special status amphibians to be present on or near the site, and the implementation of SCVHP Avoidance and Minimization Measures, impacts to these species are **less than significant**.

Western Pond Turtle. Western pond turtles are likely to occur in a variety of aquatic habitats provided by Alamitos Creek, Guadalupe Creek, and Almaden Lake. Although western pond turtles are known to nest and migrate through the Study Area, the high degree of human disturbance from ongoing and past uses has resulted in the upland dispersal habitat being of marginal quality. However, if present, this species could be directly or indirectly affected during Project construction. Substantial direct impacts to western pond turtles foraging, experiencing thermoregulation, nesting, and avoiding predators within creek and river banks and lake island vegetation could result from proposed water diversion or dewatering, vegetation and debris removal, pipeline installation, and excavation. Similarly, levee construction, re-contouring, and open park area construction could directly impact turtles basking or migrating through non-canopied parklands or indirectly through increased noise and vibratory activities within the Study Area.

Construction would be subject to SCVHP Avoidance and Minimization Measures which are designed to minimize impacts to aquatic reptiles. These measures include preconstruction surveys, biological training, decontamination practices, monitoring of construction activities that may impact suitable habitat, and upholding regulatory agency permit obligations. Impacts to western pond turtle are **less than significant** with the implementation of SCVHP Avoidance and Minimization Measures.

Operational Impacts

California Red-legged Frog, Foothill Yellow-legged Frog, and Western Pond Turtle. Improvements to hydrologic function and aquatic habitat as a result of riparian vegetation planting along banks of the restored Alamitos Creek and Almaden Lake, and habitat created on the new and expanded islands, would overall be beneficial and reduce the intensity of adverse impacts to California red-legged frog, foothill yellow legged frog, and western pond turtle.

Future maintenance of the site could include vegetation and sediment removal in the restored Alamitos Creek if necessary. Such maintenance activities would be subject to District BMPs and be done consistent with the District's Stream Maintenance Program and SCVHP Avoidance and Minimization Measures which include measures to minimize impacts to amphibians and reptiles such as preconstruction surveys, decontamination practices, and monitoring of construction activities. Operational impacts to California red-legged frog, foothill yellow-legged frog, and western pond turtle would be **less than significant**.

Mitigation Measures

None required.

Impact 3.D-3: The proposed Project would not have a substantial adverse effect on riparian communities. (Less than Significant)

Construction Impacts

There are 2.39 acres of riparian habitat in the Study Area. However, there is also substantial riparian habitat along Alamitos Creek upstream of the Study Area and along Guadalupe Creek and Guadalupe River downstream of the Study Area.

Project construction would require the removal of trees and surface vegetation in riparian areas. Of the approximately 81 trees to be removed during Project construction, a small portion of them, covering approximately 0.26 acre, is within riparian habitat. Trees that would be removed along the Almaden Valley Pipeline upstream from the Park are outside the riparian corridor of Alamitos Creek. The outlet pipeline under Guadalupe Creek would be installed using horizontal directional drilling, a trenchless technique allowing the bore pits to be located outside the Guadalupe Creek riparian corridor.

Indirect impacts may occur from dewatering the lake and diverting Alamitos Creek water around construction areas, vegetation trimming, and soil disturbance can alter soil moisture and the depth to the water table. Lowering groundwater levels by just one meter beneath riparian areas is sometimes sufficient to induce water stress in riparian trees (NAP, 2002). Construction and vegetation trimming could introduce nonnative invasive plants to the Alamitos Creek riparian corridor and expose riparian trees to pest or pathogens; mechanical damage to tree trunks and canopies by inadvertent contact by construction equipment, vehicles, or construction materials; or root damage from grading, excavation activities, or soil compaction from heavy equipment or vehicle traffic. These kinds of indirect or accidental impacts could affect approximately 1.34 acres of riparian habitat.

The District would implement BMPs: HM-8: Ensure Proper Vehicle and Equipment Fueling and Maintenance which would minimize the potential for hazardous materials to adversely impact riparian vegetation, and WQ-9: Use Seeding for Erosion Control, Weed Suppression, and Site Improvement, which would require disturbed areas to be seeded with native seed as soon as is appropriate after activities are complete thereby lessening the opportunity for nonnative plants to colonize.

The SCVHP requires implementation of Aquatic Avoidance and Minimization Measures; specifically, SCVHP Table 6-2 (Appendix C) relating to Condition 4: Avoidance and Minimization for In-Stream Projects, Condition 12: Wetland and Pond Avoidance and Minimization, and Avoidance and Minimization Measures 49. These measures identify proper construction practices that minimize impacts on riparian community flora and fauna. Measures in Table 6-2 relating to these conditions include:

- Construction workers are to receive training by a qualified biologist of avoidance and minimization measures to ensure that construction equipment and personnel avoid riparian areas outside of the work area;
- Use of appropriate erosion control measures such as filter fences and fiber rolls to reduce siltation and runoff of contaminants into riparian vegetation; retaining topsoil removed during construction for post-construction use; and
- Restricting use of invasive nonnative species seeds in erosion control applications; and requiring installation of natural methods for erosion control measures.

Due to the relatively small area of riparian habitat that is in the Study Area and that may be impacted by Project construction, and the fact that riparian habitat upstream and downstream of the Project would remain intact during construction, construction impacts would not have a substantive effect on riparian habitat quality or function. In addition, the Project would create more continuous and higher-quality riparian habitat than would be impacted. As such, Project construction would have a **less than significant impact** on riparian habitat.

Operational Impacts

Per the Project’s conceptual revegetation plan, 0.97 acres of riparian habitat would be created, a portion of the overall 11-acre creek and floodplain restoration. Operation and maintenance of the Project would include treatment of nonnative invasive plants that may have been introduced or spread by construction.

Under the Project, the District and City would continue to routinely perform vegetation management activities, including removal of invasive vegetation and levee mowing, monitoring of the low flow channel for hazardous tree conditions, channel blockages, and other conditions that could impede flow or create local drainage problems, and treatment of those conditions and problems. Such activities may result in localized impacts to restored Alamitos Creek riparian vegetation.

Localized and inadvertent adverse impacts to the Alamitos Creek riparian corridor, such as trampling, contamination or erosion resulting from tools or equipment used in maintenance activities, or spread of nonnative vegetation, would be minimized through adherence to the following District BMPs: BI-7 Minimize Impacts to Vegetation from Survey Work, BI-8 Choose Local Ecotypes of Native Plants and Appropriate Erosion-Control Seed Mixes, HM-8: Ensure Proper Vehicle and Equipment Fueling and Maintenance, and WQ-9: Use Seeding for Erosion Control, Weed Suppression, and Site Improvement.

The increase in riparian vegetation created by the Project would enhance ecosystem function associated with the riparian community in the Study Area. As discussed in Section 2.D.1, benefits to the riparian community include expansion of habitat for many species of birds, reptiles, and amphibians; in addition to extending movement and refuge habitat for mammals utilizing the upstream Alamitos Creek corridor and watershed. None of these benefits are currently provided by the lake. Increased District operations accessing the additional riparian areas, such as vegetation management along the restored creek and islands, would be considered a **less than significant impact** since inspection and maintenance would be consistent with standard District vegetation practices and BMPs and in light of the amount of riparian habitat created by the Project.

Mitigation Measures

None required.

Impact 3.D-4: The Project would not have substantial adverse effects on jurisdictional wetlands, other Waters of the United States and Waters of the State. (Less than Significant)

As discussed above, Almaden Lake, Alamitos Creek, and Guadalupe Creek are Waters of the U.S. and Waters of the State. Elements of the Project would impact these features during the construction and operation phases. The below discussion analyzes wetlands and waters collectively. Riparian habitat was specifically analyzed under impact 3.D-3 and is not included in the acres or analysis of wetland habitat below.

Construction Impacts

Table 3.D-2 provides a summary of anticipated impacts to jurisdictional wetlands and waters during the construction phase of the Project.

TABLE 3.D-2
IMPACTS TO JURISDICTIONAL WETLANDS, WATERS, AND RIPARIAN COMMUNITIES

Water/Wetland Feature	Existing Acres	Temporary Impacts (Acres)	Permanent Impact (Acres)	Post-Project Acres	Net Gain/(Loss) Habitat
Almaden Lake (open water)	32.45	17.01 (dewatering & ground disturbance)	15.44	17.01	(15.44 acres)
Alamitos Creek and Floodplain	0.45	0.45 (creek diversion & cofferdam)	0	11.75	11.30 acres
Guadalupe Creek	0.14	0	0	0.14	0
Lake, Islands Wetlands	0.46	0.46	0	1.96	1.50 acres
TOTAL	33.50	17.92	15.44	30.86	(2.64)

Temporary Impacts

Wetlands and waters would be temporarily affected by installation of the cofferdam at the Alamitos Creek footbridge, diversion of Alamitos Creek, and the dewatering, recontouring, and capping of the bed of Almaden Lake. The installation of a temporary cofferdam at the Alamitos Creek footbridge and diversion of creek water behind the cofferdam to a downstream location near the Coleman Road bridge would temporarily impact 0.45 acres of jurisdictional waters and wetlands in the Alamitos Creek channel and fringing wetland vegetation. Cofferdam installation would result in vegetation clearing, disturbance of the channel substrate, and water fluctuations which could temporarily impact the channel and fringing wetland vegetation. The cofferdam and diversion of Alamitos Creek would occur during the dry season of the first construction season. Once sheet piles are installed along the alignment of the proposed levee system, Alamitos Creek flows would be released back into the creek. Diverting the creek may occur again during the second year of construction to facilitate the west bank reconfiguration and floodplain construction if this does not occur in the first year of construction.

The 17.01-acre portion of Almaden Lake that would be conserved by the Project would be dewatered to facilitate construction, and the bed of the lake would be recontoured and capped with clean fill material to isolate mercury in the lake-bed sediment and improve water quality conditions. This would intentionally remove the current benthic community of the lake, which is contaminated with methylmercury. Following construction and re-watering of the lake, a benthic community would re-establish with a water supply that has a lower elemental mercury content and under lake contour conditions which would promote better circulation that has lower potential for mercury methylation.

Dewatering of Almaden Lake would also temporarily impact 0.46 acres of freshwater marsh vegetation along the eastern lake shoreline. Although this vegetation would be protected during construction, the lack of water supply during lake dewatering would impact wetland plant survival for approximately six months to two years depending on construction phasing. Once construction is complete, the open waters would be restored and wetlands can re-establish.

Temporary impacts to wetlands and waters as a result of creek diversion, cofferdam installation, and lake dewatering would affect a relatively small area of wetland habitat. The temporary impact to the conserved Almaden Lake bed from dewatering, recontouring, and capping is essential to achieving the water quality goals of the Project and reducing the supply of methylmercury to the Guadalupe River Watershed. In addition, these resources can restore their natural value and function under typical conditions after Project construction. Also, with the implementation of District BMP BI-3 Remove Temporary Fills, temporary impacts to wetlands and waters would not exceed the duration necessary to complete the work, as this measure requires removal of temporary fill material upon completion of work, or as appropriate. The District would also require the Project to implement the District BMPs, discussed in detail in Section 2.E.1 and Section 3.I Hydrology and Water Quality, reducing temporary impacts to jurisdictional water quality as a result of potential soil erosion or accidental release of deleterious materials during construction. Aquatic Avoidance and Minimization Measures in Table 6.2 of the SCVHP would also be implemented to further reduce the duration and extent of impacts to jurisdictional wetlands and waters. As such, temporary impacts to Alamitos Creek and Almaden Lake jurisdictional wetlands and waters would be **less than significant**.

Permanent Impacts

The restoration of the creek channel and floodplain would permanently convert 11.30 acres of open water to creek and floodplain habitat. The existing island in the lake is approximately 0.5 acres in area and is not counted as open water or as wetland in the wetland delineation prepared for the Project. The Project would expand this island to 0.75 acres in area and create a second island also 0.75 acres in area. The expansion of the island and creation of a new island would convert 1.00 acres of open water to wetland habitat and convert 0.5 acres of upland (the existing island) to wetland habitat. The construction of the levee separating the creek from the new lake would result in the permanent fill of 0.79 acres to the existing lake's open water and up to 2.35 acres of existing lake would be converted to new upland Park area. The relocation of the existing boat house and boat launch ramp would not result in loss of waters as the new location of the boat launch ramp would cover lake waters to the similar extent as under existing conditions, or in an area of fill already covered elsewhere in this analysis. In total, the proposed Project would conserve 17.01 acres of Almaden Lake open water, convert approximately 11.30 acres of open water to creek, floodplain, and wetland habitat, convert 3.14 acres of open water to upland habitat, and convert 0.50 acres of upland habitat (existing island) to wetland habitat.

Permanent and temporary impacts to wetlands and waters would be offset by a net gain in wetland and water function and values after Project implementation, as the Project is intended to benefit wetlands and open water habitats in the near and long term. In addition, the benefits of creek restoration and enhancements to the lake would extend beyond the Project footprint. This is because opening fish passage by restoring Alamitos Creek would benefit steelhead and Chinook salmon, which both require unimpaired and unconstrained passage from freshwater to the ocean to complete their life history and to sustain local populations. The Project would also improve water quality in discharges into the Guadalupe

River system because methylmercury production in the Lake would be minimized. The Project's benefits to the open water of Almaden Lake include a reduction in the presence of mercury methylation and reduced anoxic conditions, which would improve water quality in the lake. The new source of water in the lake would have a lower elemental mercury content. The Project removes the direct linkage of Alamitos Creek water flowing into the lake and eliminating the deposition of elemental mercury into the lake from upstream sources thereby improving the quality of the waters in the Study Area and the Guadalupe River system downstream. The native wetland vegetation and improved water quality provided by the Project in the lower floodplain, on the levee, and on the expanded and new islands, would result in a greater quantity and overall benefit to the wetland community compared to existing wetlands, which are isolated and small in size.

The wetlands proposed by the Project upon refilling the lake would be consistent with existing Alamitos Creek upstream channel vegetation and would enhance wetland habitat structure and diversity. The improved ecosystem resulting from the conversion of Almaden Lake open water to creek and floodplain would slow and sequester runoff and associated pollutants and fine sediment before they enter the restored creek and lake waters. The removal of water nutrients and addition of dissolved oxygen would further enhance ecosystem function and reduce the potential of algal blooms affecting water quality and wildlife habitat. Wetlands and waters in the Study Area would benefit from naturally functioning ecosystem offered by the Project. The planting of the new creek, floodplain, and lake margins would provide ecosystem services that are not provided under existing conditions, such as stream temperature maintenance, nutrient uptake, and continuous habitat for a diversity of species. The new levee and Park area that would convert 3.14 acres of degraded Almaden Lake open water to upland habitat are necessary to provide the enhanced lake, creek and floodplain habitat and functions provided by the Project. Although these areas would no longer be jurisdictional waters, they would also be planted to enhance habitat conditions for native wildlife. As such, permanent impacts to wetlands and waters as a result of the Project construction would be **less than significant**. Enhancement to water quality and beneficial uses in jurisdictional waters achieved by the Project would more than compensate for the Project's temporary construction impacts, as well as impacts of the District's Upper Berryessa Project.[12]

Operational Impacts

Routine vegetation management and structural maintenance activities, as discussed in Chapter 2, Project Description, are expected to increase, compared to current conditions, after the new levee is constructed, planting of native vegetation is completed, and solar-powered circulators are added to the lake. After initial revegetation, monitoring of the plantings would occur to determine the need for additional maintenance or remedial actions, such as replacement plantings, substitute species, watering, weeding, and/or nonnative plant treatment. After revegetation establishment, vegetation in the floodplain, on the levee, and on the new and expanded islands may require maintenance and would be similar in frequency to

[12] Memo from SFRWQCB to SCVWD, August 8, 2018, Proposed Use of Almaden Lake Project to Comply with the Order for the Upper Berryessa Creek Flood Risk Management Project.

existing maintenance. Routine activities such as sediment removal, grading, and infrastructure repairs, as a result of the Project elements, would require accessing open waters and the floodplain within the Project area. Sediment removal is anticipated to be necessary only every 10 years. Sediment removal would result in temporary impacts to the restored Alamitos Creek channel, but there would be no permanent loss of wetlands.

Vegetation management and maintenance activities in the Project area would be carried out according to the District's Stream Maintenance Program (SMP) and/or Vegetation Management Unit and the City's Parks and Recreation Division. Maintenance impacts would be reduced with the implementation of BMPs, such as the District's SMP Program Manual. Furthermore, the District would implement BMPs to minimize the potential for degradation of water quality in wetlands and open waters. As discussed in Impact 3.J-2, use of pesticides would be required to comply with pesticide regulations designed to ensure that the pesticides would be applied in a safe manner to protect the safety of the workers and the public, and in a manner appropriate for the environment. These activities would not result in substantial adverse effects because maintenance activities would be beneficial to the resource, infrequent, and would only require brief periods of activity at each location when maintenance is required. Additionally, the overall net gain in the quality of restored creek and lake would offset any adverse impacts resulting from the Project's increased vegetation and water quality management activities. Overall, operational and maintenance activities at Almaden Lake and Alamitos Creek would be **less than significant** under the Project as they would result in an enhancement of ecosystem function and continue in a similar nature as they are currently implemented.

Mitigation Measures

None required.

Impact 3.D-5: The Project would not interfere substantially with the movement of any native resident or migratory wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites. (Less than Significant)

Construction and Operational Impacts

The Study Area is in an urbanized area of San José and is consistently exposed to human disturbance originating from adjacent streets and recreationalists using Almaden Lake Park. Outside of the natural corridors along Alamitos Creek, the Study Area is largely surrounded by built uses, which block migration of terrestrial species. Any wildlife movement in the area is likely habituated to high levels of human activity.

The construction phase of the Project could temporarily alter terrestrial wildlife movement or native wildlife nursery site in Alamitos Creek corridor or Almaden Lake; however, the area of impact and proposed construction duration would not substantially impact or impede these activities. Suitable movement corridors and habitat for these species are found immediately upstream and downstream of the Study Area. The proposed riparian vegetation enhancements along the Alamitos Creek corridor would provide increased habitat and cover, in comparison to existing conditions where landscaped lake margins are more exposed and provide limited natural areas for dispersal, foraging and breeding. The proposed wetland, riparian, and upland vegetation along the rehabilitated creek could thereby support increased wildlife movement, helping to connect upstream areas with downstream reaches of the Guadalupe River Watershed. The construction and enhancements of the lake islands would create additional habitat for migratory birds and aquatic based wildlife, such as western pond turtles. These islands are viewed as an enhancement as they provide habitat areas that are isolated from human disturbance and land-based predators. Impacts to nesting birds and special-status wildlife species using the riparian corridor within the Study Area during construction, are further discussed under Impact 3.D-1 and Impact 3.D-2, above. Fisheries and fish passage discussed in Section 3.E Fisheries Resources.

For these reasons the Project would enhance the quality of the Project area with respect to wildlife movement. Therefore, the Project would not substantially adversely interfere with the movement of any native resident or migratory wildlife species or with an established native resident or migratory wildlife corridor, or impede the use of a native wildlife nursery site, and the impact would be **less than significant**.

Mitigation Measures

None required.

Impact 3.D-6: The Project could conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance. (Less than Significant with Mitigation)

Construction Impacts

The City of San José provides for the protection of trees in the Municipal Code (Code) Sections 13.28, 13.32 and 13.44.220. A tree subject to the Code is a single trunk tree, 38 – inches or more in circumference at 4.5 feet above ground; or a multi-trunk tree, the combined measurements of each trunk circumference add up to 38-inches or more. As discussed in the Code, the City Council maintains a Heritage Tree List for the official recognition and protection of trees on both private and public property that are of special significance to the community because of their history, girth, height, species or unique quality. There are no heritage trees in the vicinity of Almaden Lake; however, there are two heritage trees located near the north end of Crossview Drive on private property.[13] The Code also applies to 'Street Trees,' defined as any tree that is planted on a street (Municipal Code Section 13.28.095), and trees within parks, unless authorized in writing by the director of the department of

[13] http://www.sanjoseca.gov/index.aspx?NID=3435

recreation, parks. The City also has a Community Forest Master Plan (Community Forest Committee, 2009) and Community Tree Policy Manual & Best Management Practices (City of San José, 2013).

The Project would remove approximately 81 trees to accommodate Project construction. These do not include the heritage trees near Crossview Drive. However, trees to be removed along Crossview Court may be considered 'Street Trees.' Trees would be removed within Almaden Lake Park, and along the Alamitos Creek Trail for the Almaden Valley Pipeline. The District would obtain written authorization or permit for removal or potential damage of all trees that meet the City of San José Code requirements for street trees and parks. In addition, the Project would implement the tree protection and replacement requirements of the City. Therefore, tree removal would be a **less than significant impact**.

The Project, and in particular the Almaden Valley Pipeline connection work, could also indirectly impact up to 54 trees subject to the City Code through inadvertent limb and/or root damage. Such damage could lead to tree mortality after Project construction is completed, which would conflict with the City Code, plans, and guidance related to trees and would be considered a **significant impact**.

Implementation of **Mitigation Measure 3.D-6 (Tree Protection Measures)** would ensure the Project protects trees that promote the health, safety, and welfare of the city from inadvertent damage, and reduce the Project's potential for conflict with City of San José tree codes, plans, and guidance to **less than significant with mitigation**.

Operational Impacts

The Project specifies the banks of the restored channel would be planted with a corridor of native riparian trees consistent with existing Alamitos Creek upstream channel vegetation. Portions of the upper floodplain would be planted with western sycamore, coast live oak, and California buckeye.

The Project would require ongoing maintenance, including vegetation trimming and other vegetation related maintenance. However, weedy species would generally be removed when small, and removal of larger trees subject to the City's tree ordinance is not anticipated under routine Project maintenance. Therefore, the Project would not affect trees protected under City requirements, and **no impact** would occur as part of Project operation.

Mitigation Measures

Mitigation Measure 3.D-6: ***Tree Protection Measures*****.** Trees adjacent to the project area that are retained during construction can still experience irreparable damage to roots and other tree parts with excavation, compaction, mechanical injury, and/or over pruning for construction access.

- Construction impacts shall be evaluated and planned to avoid locally native trees and other trees protected by City code. A site meeting with contractor, certified arborist, and other project personnel shall be conducted prior to construction to discuss tree protection measures and specific tree resources. The construction contract must include the on-call services of qualified arborist.

- All pruning work shall be conducted or directly overseen by a certified arborist. All pruning shall be done in accordance with ISA “Tree Pruning Guidelines” and/or the ANSI A300 Pruning Standards. Pruning of limbs and roots shall be minimized and conducted during cool, dry weather outside the active growing season when feasible. Access needs and equipment clearance shall be determined well in advance of construction to help schedule required pruning work at a time that is least detrimental to the tree species involved.

- Pruning of more than 25% of an individual tree’s canopy or crown in a single season shall be avoided. Removal of live limbs greater than 4 inches in diameter shall be avoided if possible or receive prior approval by a certified arborist. Selective removal of tree limbs for equipment access is always preferable to mechanical injury or incidental contact of equipment with tree parts during construction. Some branches may be tied back temporarily, rather than removed, to facilitate site access.

- Establish a “Tree Protection Zone” (TPZ) around trees retained in the project area during construction. The TPZ shall be clearly marked and defined in the field using fencing or similar access deterrent and should be determined by the City’s Arborist, or the Project designated ISA Certified arborist. No grading, compaction, excavation, soil storage, equipment storage, hazardous material storage, removal of understory vegetation, or equipment operation shall be conducted in the TPZ.

- Any grading, construction, demolition, or excavation work that may encounter live tree roots (from trees scheduled for retention in Project area) shall be monitored by a certified arborist. Roots may extend beyond the canopy dripline or there may be insufficient space available for an adequate TPZ. Compaction of undisturbed native soils shall be considered as part of root area impacted by construction.

- When larger roots (>2-inch diameter) are encountered during construction, excavations shall only continue by hand or with smaller, hand-held tools (e.g. air spade) until sufficient root area has been exposed to cut it cleanly with a sharp instrument (e.g. pruning saw, cut-off saw, loppers) to remove the portion overlapping the construction area. Root pruning shall by conducted by or under direct supervision of a certified arborist.

- If feasible, root pruning along the outside edge of a trench or other excavation shall be conducted prior to construction utilizing a combination of small equipment (i.e. trencher, small backhoe, cut-off saw) and hand tools. This “pre-pruning” gives the trees a chance to adapt to root loss prior to construction and develop new feeder roots that aid in water absorption.

- All tools used for pruning of tree roots or limbs shall be kept sharp and regularly disinfected to discourage the spread of plant pathogens.

Significance after Mitigation: Less than Significant. The implementation of Mitigation Measure 3.D-6 would ensure that the Project complies with all San José policies and regulations regarding the protection of trees by protecting the canopy, limbs, and roots of regulated trees that may be impacted by construction activities.

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3.E Fisheries Resources

This section addresses effects to fisheries resources that may result from implementation of the Project. Analysis of fisheries resources addresses native fish species and their aquatic habitat within the Project footprint as well as adjacent habitat outside of these boundaries. The term “Study Area” is used to describe all of Almaden Lake, small portions of Alamitos Creek, Guadalupe Creek, and Guadalupe River. In instances of specific reference to the construction footprint; the term “Project site” is used. The fisheries resources described in this section include aquatic habitats, primarily lacustrine and fluvial, along with the special-status fish species that occur therein. Special-status fish species included in this section are those designated by federal or state agencies as endangered, threatened, or proposed for listing, candidate species; and state or local species of concern. The existing hydrology and water quality condition within the Study Area are discussed only as they relate to fisheries resources, for a more detailed discussion of impacts to hydrology and water quality please refer to Section 3.K, Hydrology and Water Quality. For a detailed discussion of non-fisheries related biological resources, please refer to Section 3.D, Biological Resources.

This section also identifies the federal, state, and local regulations related to fisheries resources with jurisdiction over the Study Area. Information used in the preparation of this chapter was primarily obtained from the National Marine Fisheries Service’s (NMFS) and California Department of Fish and Wildlife’s (CDFW) list of federally threatened and endangered species known to occur in the Study Area, a reconnaissance-level field survey conducted by ESA biologist, Garrett Leidy on February 12, 2016, historical fish survey records, District technical memorandums, and best-available scientific literature.

3.E.1 Environmental Setting

Regional Setting

The Study Area is located within the Guadalupe River Watershed, draining approximately 170 square-miles of the Santa Cruz Mountains and surrounding valley floor, into South San Francisco Bay. As with many watersheds on the west side of the Santa Cruz Mountains, the upper zone is largely undeveloped, a significant portion of which is off limits to the public and legally protected (SCBWMI, 2000). In contrast, the valley floor portion of the watershed is a highly developed, urban environment with stream channels that have been highly modified from their original form.

The Guadalupe River watershed, and the Santa Clara Valley as a whole, exhibits a Mediterranean climate, with warm dry summers and mild wet winters. Precipitation occurs primarily from November through April, with minimal rainfall from May to October. Average rainfall varies throughout the watershed, with higher elevations on average exhibiting higher levels of precipitation than the valley floor (SCVHA, 2012). However, annual averages are often misleading in Mediterranean climates, as fairly frequent drought conditions and seasonal variation often leads to a wide range of precipitation outcomes depending on the given year. The percentage of precipitation carried away by streams as runoff also varies depending on location within the watershed; depending on factors like topography, soil condition, depth to groundwater, and the density of urbanization. It is estimated that 16 to 24 percent of the precipitation that falls within the watershed runs off (SCBWMI, 2000).

Historically, most creeks in the Santa Clara Valley, and the San Francisco Bay Area as a whole, were intermittent and dry in their lower reaches during the summer months. Six major reservoirs exist within the watershed: Calero Reservoir on Calero Creek, Guadalupe Reservoir on Guadalupe Creek, Almaden Reservoir on Alamitos Creek, Vasona Reservoir, Lexington Reservoir, and Lake Elsman on Los Gatos Creek (SCBWMI, 2000). These reservoirs were all built for water storage and conservation, and all create impassable barriers to migrating fish species. Almaden Reservoir, located in the headwaters of Alamitos Creek, acts as a complete barrier to upstream fish passage. As patterns of water use changed, primarily through increased urban development and the requisite need for increased water consumption, many Santa Clara Valley creeks experienced increased summer flow. Today many creeks within the watershed are perennial, fed during summer months from reservoir releases, urban runoff, and sustain high groundwater levels (SCBWMI, 2000). These increased summer flows and associated high groundwater levels are reliant upon stored and imported water, released from reservoirs during summer months into many creeks that would otherwise be naturally dry (Smith, 2013). As a consequence, continuous summer flow is now maintained in the Guadalupe River.

Alamitos Creek, and main tributary Calero Creek, provides the hydrologic input and output to Almaden Lake, draining the 38-square mile Almaden Valley. Alamitos Creek merges with Guadalupe Creek, to form the Guadalupe River, at a confluence just downstream of the Project site. The source of Alamitos Creek watershed is in the upper elevations of the Santa Cruz Mountains. It flows from its source into the approximately 60-acre Almaden Reservoir, completed in 1935 for water storage (SCBWMI, 2003). The reservoir receives waters from 12-square miles, including the small, perennial Herbert and Barrett creeks which empty into the southern end of the reservoir. Storms, or long wet periods in some water years, often produce more water than the small reservoir can contain. Excess water is directed into Calero Reservoir via the Almaden-Calero Canal (SCBWMI, 2000) or spills over the Almaden Dam spillway.

From Almaden Reservoir, Alamitos Creek flows northeast approximately five miles, to its confluence with Calero Creek. The stream then continues westward at a moderate slope for approximately 4-miles, draining into Almaden Lake. Downstream of Almaden Lake, the Alamitos Creek channel continues for approximately half a mile before joining with Guadalupe Creek, forming the Guadalupe River. Major floods occurred in the Alamitos and Calero Creek watershed in 1931, 1937, 1940, 1941, 1943, 1945, 1952, 1958, 1962, 1967, and 1968, and some caused significant damage (SCBWMI, 2000; 2003). As such, in the 1970s, approximately six miles of Alamitos Creek, from the Bertram Road Bridge downstream of its confluence with Guadalupe Creek, was widened and levees were built to provide flood protection (SCBWMI, 2000; 2003).

Just downstream from the Project site are a series of percolation ponds, managed by the District for groundwater recharge. A significant number of similar ponds are found throughout the watershed, constructed in locations where gravel and sand alluvium has been naturally deposited at or near ground level. Gravel and sand substrates, as opposed to clay, allow water to soak down most easily into the aquifers. These percolation ponds tend to contain marginal water quality conditions and are often colonized by nonnative fish; offering very little value to native fish species (Smith, 2013).

Guadalupe River Watershed Fish Community

Santa Clara Valley streams are home to approximately eleven (11) native and nineteen (19) nonnative species of fish (SCBWMI, 2000; Leidy, 2007; Smith, 2013). Over time the abundance and distribution of native species has been reduced and restricted through human impacts. Most headwater reaches and tributaries remain less disturbed than the lower valley floor streams, which typically abut much of the urban development found in South San Francisco Bay. In contrast to the warmer, impaired valley floor stream habitat, aquatic habitat in the high-elevation, forested headwaters provide cool temperatures, high dissolved oxygen levels, and ample riparian cover (SCBWMI, 2000). The construction of Vasona, Guadalupe, and Almaden Reservoirs in the 1930s isolated the upper watershed, and while native fish species persist in stream habitat above reservoirs, migratory fish can no longer use these tributaries for spawning. All low-elevation, mainstem streams and valley floor tributaries within the Study Area and vicinity have been significantly altered by human development. These developments include urbanization, water diversions, stream channelization, other flood-control projects, riparian vegetation removal, and increased rates of sedimentation (Moyle, 2002; Leidy, 2007). This altered habitat structure often coincides with changes to hydrology and water quality, which typically favors nonnative, invasive fish species (Moyle, 2002).

However, habitat alteration in the lower reaches of the Guadalupe River watershed has not affected the native fish community such that it significantly deviates from its historical composition. District stream sampling consistently records native species in higher abundances than invasive species throughout the Guadalupe River watershed including Alamitos Creek (SCVWD, 2019a). Within Alamitos Creek, native fish species including California roach, prickly sculpin, Sacramento sucker, and *O. mykiss* are all consistently recorded (SCVWD, 2019a).

Mercury

The historic New Almaden Quicksilver Mines were in the upper Guadalupe Watershed, approximately five miles from the Project site. Here, vast amounts of mercury were extracted to facilitate gold mining activities during California’s gold rush era. The New Almaden Mine was the largest mercury mine in North America and contributed to the release of approximately 6,500 tons of mercury into local creeks and rivers during its years of operation, spanning from 1850 to 1970 (SCVWD, 2015). As a result of the extensive history of mining, large amounts of legacy mercury have been deposited throughout the watershed, including the Project site.

Due to the relative lack of hydrologic mixing within Almaden Lake, mercury and methylmercury (a form that is more toxic and more readily taken up into the food web) levels within the lake are of particular concern. As part of San Francisco Bay Regional Water Quality Control Board (RWQCB) total maximum daily load (TMDL) requirements, fish tissue sampling was conducted over multiple years within the Guadalupe River watershed to document the accumulation of mercury in the soft tissue of exposed fish as part of the Coordinated Monitoring Program. As part of the study, Central California roach (*Lavinia symmetricus symmetricus*) and other fish specimens were collected from Almaden Lake, Alamitos Creek, Guadalupe River, and a handful of reservoirs within the watershed and analyzed for mercury contamination.

To protect ecological and human health, the San Francisco Bay Basin Plan Amendment for mercury in the Guadalupe River watershed set forth numeric targets for mercury in fish tissue (AECOM, 2017):

- 0.05 mg/kg methylmercury fish average wet weight concentration in whole trophic level 3 fish 5 to 15 cm in length, and
- 0.1 mg/kg methylmercury fish average wet weight concentration in whole trophic level 3 fish 15 to 35 cm in length.

Methylmercury sampling within Almaden Lake and Alamitos Creek, upstream of the Project site, was conducted most recently in May 2016. Largemouth bass collected in Almaden Lake were found to contain a mean methylmercury concentration of 819 ng/g. California roach collected in Alamitos Creek at Harry Road and Graystone Lane also showed elevated methylmercury concentrations of 2,102 ng/g and 2,026 ng/g, respectively (AECOM, 2017).

Of the fish collected in lakes and reservoirs during this survey effort, fish collected from Almaden Reservoir had the highest methylmercury concentrations followed by fish collected from Guadalupe Reservoir, then Almaden Lake, and lastly Calero Reservoir. Of the fish collected from stream locations, fish collected from Alamitos Creek at Harry Road had the highest mercury concentrations, followed by fish collected from Guadalupe Creek at Meridian/Singletree and Alamitos Creek at Greystone, then Guadalupe River at Foxworthy/Virginia, and lastly Guadalupe River at Coleman (AECOM, 2017).

Project Site

Lacustrine Habitat

The waters of Almaden Lake can be characterized as lacustrine habitat; freshwater, open habitat that does not support abundant emergent vegetation and is not subject to tidal exchange. Almaden Lake was formed as a result of accidental inundation of a gravel-mining pit adjacent to the Alamitos Creek, when the levee separating the creek and the quarry breached. Almaden Lake has no groundwater connection and is currently only replenished by Alamitos Creek flows, direct precipitation, and limited stormwater runoff. Almaden Lake is approximately 32 acres in area, with a maximum depth of 43 feet. The elevation of the lake surface is raised approximately five feet when flashboards are installed at the Alamitos drop structure downstream. Water flowing from Almaden Lake into the Guadalupe River is primarily surface water, warmer than lake bottom temperatures.

Native Sacramento sucker (*Catostomus occidentalis*), prickly sculpin (*Cottus asper*), and rainbow trout (*O. mykiss*) have the potential to enter Almaden Lake. However, trout are unlikely to occur within the lake during late-spring and summer months when the lake warm and dissolved oxygen reduces. Nonnative largemouth bass (*Micropterus salmoides*) and other sunfishes (*Lepomis sp.*) dominate the fish assemblage within the lake. Additional nonnative species including catfishes (*Ictalurus catus* and *I. nebulosus*), common carp (*Cyprinus carpio*), and inland silverside (*Menidia beryllina*) are also common (Smith, 2013).

Special-Status Species

Special-Status Fish Species

Special-status fish species are those species legally protected or are otherwise considered sensitive by federal, state, or local resource conservation agencies and organizations. Special-status fish species include:

- Species listed as threatened or endangered under the Federal Endangered Species Act (FESA) or California Endangered Species Act (CESA);
- Species identified by NMFS or CDFW as species of special concern; and
- Species fully protected in California under the California Fish and Game Code.

Species Assessed in Detail

The special-status fish species presented in **Table 3.E-1**, along with the regulatory basis for their status, have a Moderate to High potential to occur within the Study Area and are described in detail below:

- Central California Coast steelhead DPS
- Central Valley fall-run Chinook salmon ESU
- Pacific lamprey

Fish Species Accounts

Central California Coast steelhead DPS (*Oncorhynchus mykiss*)

Steelhead have a highly flexible life history and may follow a variety of life-history patterns including residents (non-migratory, often referred to as rainbow trout) and individuals that migrate to the open ocean (anadromous). Steelhead are unique among Pacific salmon as they are iteroparous in that ocean migrating individuals may return to the ocean after spawning and return to freshwater to spawn one or more times.

TABLE 3.E-1
SPECIAL-STATUS FISH SPECIES WITH POTENTIAL TO OCCUR IN THE ALMADEN LAKE STUDY AREAS

Species	Status[1]		Habitat Requirements	Potential to Occur in the Almaden Lake Improvement Project Site
	NMFS	CDFW		
California Central Coast steelhead DPS *Oncorhynchus mykiss*	T	--	Requires cold, freshwater streams with suitable gravel for spawning. Rears in rivers and tributaries to the San Francisco Bay.	Moderate. Known to occur in multiple South Bay streams including the Guadalupe River and Alamitos Creek. Likely present in all accessible reaches of these streams (Leidy et al. 2005a; SCVWD, 2018).
Central Valley fall-run Chinook salmon *Oncorhynchus tshawytscha*	--	SSC	Requires cold, freshwater streams with suitable gravel for spawning. More common in Central Valley streams, occasionally rears in tributaries to San Francisco Bay.	Moderate. Known to occur in small numbers in multiple South Bay streams including the Guadalupe River and Alamitos Creek (Leidy 2007). Genetic analysis and presence of coded wire tags has determined that Chinook in South Bay streams are derived hatchery stock (Moyle, 2002; Garcia-Rossi and Hedgecock, 2002).
Pacific lamprey *Entosphenus tridentatus*	--	SSC	Requires cool, freshwater streams with suitable gravel for spawning. Rears in rivers and tributaries to San Francisco Bay.	Moderate. Known to occur in multiple South Bay streams including the Guadalupe River and Alamitos Creek (Leidy 2007). This species' status is poorly documented, and its relative abundance in streams is unknown.

ACRONYMS:
CDFW = California Department of Fish and Wildlife; DPS = Distinct Population Segment; NMFS = National Marine Fisheries Service.

1 Legal Status Definitions:

Federal Listing Categories (NMFS):
T Threatened (legally protected)
E Endangered (legally protected)

State Listing Categories (CDFW):
SSC Species of Special Concern (no formal protection)

SOURCE: Moyle 2002, Leidy 2007, Smith 2013

Eggs (laid in gravel nests called redds), alevins (gravel dwelling hatchlings), fry (juveniles newly emerged from stream gravels), and young juveniles all rear in freshwater until they become large enough to migrate to the ocean to finish rearing and maturing to adults. Status reviews of steelhead in California document much variation in life history (Shapovalov and Taft, 1954). Although variation occurs, in coastal California, steelhead usually live in freshwater for one to two years, then spend an additional two or three years in the ocean before returning to their natal stream to spawn. Adult steelhead typically migrate to tributaries of San Francisco Bay between December and April, peaking in January and February (Moyle et al., 2008). Monitoring at the Masson Fishway on Guadalupe Creek suggests late-February and early March are the peak migration months for adult steelhead in Guadalupe watershed (SCVWD, 2009). Adult steelhead are generally not present in streams between May and October. During the adult migration season, the timing of upstream immigration typically correlates with seasonal high flows and associated lower water temperatures.

Steelhead select spawning sites with gravel substrate and with sufficient flow velocity to maintain circulation through the gravel and provide a clean, well-oxygenated environment for incubating eggs. Typically, sites with preferred features for spawning occur most frequently in the pool tail/riffle head areas where flow accelerates out of the pool into the higher gradient section below. In such an area, the female will create a pit, or redd, by undulating her tail and body against the substrate.

Steelhead fry generally rear in edgewater habitats and move gradually into pools and riffles as they grow larger. Cover is an important habitat component for juvenile steelhead, both as a velocity refuge and as a means of avoiding predation. Steelhead, however, tend to use riffles and other habitats not strongly associated with cover during summer rearing more than other salmonids. Young steelhead feed on a wide variety of aquatic and terrestrial insects, and emerging fry are sometimes preyed upon by older juveniles.

Temperature is also an important factor for steelhead/rainbow trout, particularly during the over-summer rearing period (Moyle, 2002). The upper lethal temperature for Pacific salmonids is in the range 23.9 to 25 °C for continuous long-term exposure. However, steelhead can survive for short periods at elevated temperatures (26-27 °C), especially if abundant food and dissolved oxygen exist (Moyle, 2002).

Juvenile steelhead emigrate episodically from natal streams during fall, winter, and spring high flows, (Fukushima and Lesh, 1998). Emigrating CCC steelhead use tributaries of San Francisco Bay and portions of the San Francisco Bay for rearing and as a migration corridor to the ocean. Although data regarding the emigration timing of steelhead smolts from Alamitos Creek and the Guadalupe River watershed is limited, steelhead smolts in other streams within the DPS including those draining to San Francisco Bay, typically emigrate from March through June (Fukushima and Lesh, 1998).

Status in the Study Area

Historically, the Guadalupe River watershed supported a steelhead run, although due to the aridity of the system it was likely smaller than those supported in the larger San Francisco Bay tributaries like Alameda Creek (Leidy et al., 2005a). The urbanization in the lower reaches of the watershed, along with construction of barriers to upstream passage has reduced the size of the historic run.

The District conducted five years of monitoring of passage conditions of the Alamitos and Masson Fishways aimed at documenting the effectiveness of fish passage through both facilities. To conduct the monitoring, the District used a Vaki Riverwatcher, a computer based fishcounter which captures silhouettes of fish as they pass through the Fishways. The fishcounter was deployed in the Alamitos Fishway from 2003 to 2006 and in the Masson Fishway from 2006 to 2008. In all years of the study steelhead were documented moving upstream through both Fishways, peaking in 2006-07 monitoring year when 42 adult steelhead were recorded moving upstream through the Masson Fishway. In that same year 14 adult and 5 juvenile steelhead were recorded moving downstream through the Masson Fishway (SCVWD, 2009).

District survey records on Alamitos Creek, upstream of Almaden Lake, have historically recorded individual steelhead throughout the stream reach below the reservoir (Leidy et al., 2005a). Recent surveys, conducted in October 2018 at four locations on Alamitos Creek, consistently recorded *O. mykiss* throughout the reach upstream of Almaden Lake (SCVWD, 2019a). These surveys suggest that Alamitos Creek likely supports successful reproduction and summer rearing in most water years.

While water quality and temperature constraints most likely prohibit the persistence of steelhead within Almaden Lake, the surrounding reaches of Guadalupe Creek, Guadalupe River, and Alamitos Creek all sustain steelhead populations. Additionally, during migration periods adult and juvenile steelhead move through Almaden Lake to reach spawning habitat upstream, or San Francisco Bay downstream. As such, individual juvenile steelhead have the potential to occur year-round within the vicinity of the Project site.

Central Valley fall-run Chinook salmon ESU (*Oncorhynchus tshawytscha*)

Chinook salmon are the largest species of Pacific salmon (Moyle, 2002). Chinook are anadromous (a migratory fish that is born in fresh water and spends a portion of its life in the sea before returning to fresh water to spawn), but unlike steelhead, Chinook salmon are semelparous (i.e., they die following a single spawning event). Chinook salmon populations, and all Pacific salmonids, are divided into Evolutionarily Significant Units depending on their life-history strategies. Life-history strategies are differentiated by the timing of immigration, a fact implicit in the name of the different runs according to their spawning migration.

Adult Central Valley (CV) fall-run Chinook salmon enter rivers and streams in the late-summer and fall months as mature individuals, moving quickly upstream to accessible spawning habitat. Peak spawning occurs within several weeks of freshwater entry, typically from October to November, but often continuing into December and January (Yoshiyama et al., 1998). Juveniles spend about 1 to 7 months in the river and estuary systems before entering the ocean (Michel et al. 2013). As with steelhead, downstream migration is typically correlated with storm events and increased flows (Moyle, 2002).

Chinook salmon have very similar spawning requirements to those described above for steelhead, requiring cool, swift, well-oxygenated stream habitat. However, Chinook use the largest substrate of any California salmonid for spawning, preferring a mixture of large gravel and small cobble. While rearing in stream habitats, Chinook salmon feed on aquatic and terrestrial invertebrates, in intertidal habitats salmon feed on amphipods, insects, and fish larvae. During the oceanic life stage, during which most growth occurs, Chinook salmon feed on fish, large crustaceans, and squid (Moyle, 2002).

Throughout its range, the largest factor limiting this species is the presence of migration barriers that prevent access to spawning habitat. Water diversions further reduce freshwater habitat quality throughout the range of these species. Other threats to Chinook salmon include agricultural operations, forestry operations, gravel extraction, illegal harvest, streambed alteration, unscreened or substandard fish screens on diversions, suction dredging, urbanization, water pollution, potential genetic modification in hatchery stocks resulting from domestication selection, incidental mortality from catch-and-release fishing, climatic variation leading to drought, flooding, variable ocean conditions, and predation (Moyle, 2002).

Status in the Study Area

While not present in the records of early biologists, beginning as early as 1986, Chinook salmon are observed entering the Guadalupe River to spawn. The lack of historical records, coupled with the salmon's attempts to enter the river months before stream flows and water temperatures are suitable for spawning (as early as July in some years), indicate that the runs are comprised of fall-run strays from Central Valley streams. However, in 1998 the District collected Chinook smolts during spring trapping on the lower Guadalupe River, suggesting that successful reproduction has occurred (Smith, 2013). Results of genetic analyses indicate that Chinook salmon from the Guadalupe River are most closely related to Central Valley and stocks with the greatest similarities to fish from the Feather River (Garcia-Rossi and Hedgecock, 2002). The recovery of individuals with adipose fin clips and coded fire tags further support the claim that these salmon are of hatchery origin.

As part of the District Fishway study described above, Chinook salmon were also observed moving throughout the system. At Alamitos Fishway, during the 2004-05 monitoring season, 27 adult Chinook were observed moving upstream through the Fishway. During that same survey season, 9 adult Chinook were observed moving downstream through the Alamitos Fishway (SCVWD, 2009).

As with steelhead, water quality conditions within Almaden Lake most likely prohibit any extended presence of Chinook salmon. However, redds and spawning Chinook adults have been observed in Guadalupe and Alamitos Creek near the Project site (SCVWD, 2019). As such, individual CV fall-run Chinook salmon have the potential to occur seasonally within the vicinity of the Project site. It must be noted that no portion of the Guadalupe Watershed is designated as critical habitat for CV fall-run Chinook salmon, and no stream systems within Santa Clara County are included on range maps for the species.

Pacific lamprey (*Entosphenus tridentatus*)

Pacific lamprey are the largest of the native lamprey species with adults commonly reaching over 40 cm in total length. They are anadromous fish, rearing in freshwater streams for approximately 5 to 7 years before migrating to the ocean (Moyle, 2002). During their ocean phase, approximately three years in length, they feed parasitically on fish larger than themselves, consuming the body fluids of a variety of species.

Adults return to freshwater during spawning migrations which typically take place between early March and late June, but can vary greatly depending on the system (ENTRIX, 1996; Moyle, 2002). Lamprey spawning habitat preference and behavior is similar to the spawning patters of salmonids, and steelhead in particular, as adults are capable, albeit unlikely, of multiple spawning events (Moyle, 2002). Lamprey prefer low-gradient, high oxygenated riffle environments in which both sexes construct nests in which to lay and fertilize eggs. After hatching, larval lamprey (commonly referred to as ammocoetes), burrow into soft stream sediments tail first and begin filter feeding on organic matter near the substrate (Gunkel et al., 2009). The ammoecete phase lasts for approximately 5 to 7 years before individuals are large enough, and have undergone the requisite size and physiological changes to tolerate salt water, to migrate to the ocean. Downstream migration is typically timed with high flow events in the winter and spring. As mentioned above, instream habitat preferences of Pacific lamprey are very similar to salmonids, as they prefer streams with cold, clear water, with temperatures in the range of 10 to 18 °C (Meeuwig et al., 2005).

As with many native fish species, the restriction in access to historic spawning reaches in natal streams has caused a decline in the overall population.

Status in the Study Area

Pacific lamprey are known to occur throughout the Guadalupe River watershed, primarily within the Guadalupe River but have also been observed within Alamitos Creek upstream of Almaden Lake (Smith, 2013). During 2004 monitoring of an out-migrant trap on the lower mainstem Guadalupe River more than 60 adult Pacific lamprey were recorded by the District biologists (Leidy 2007). Additionally, as part of the Alamitos and Masson Fishway passage studies, adult Pacific lamprey were observed in 2008 passing through the Masson Fishway. This observation was confirmed through surveys of the reaches upstream of the Masson Fishway in which adult Pacific lamprey were recorded by District staff (SCVWD, 2009).

As, Pacific lamprey have been recorded in recent years within close proximity to the Project site they do have the, potential to occur year-round. Due to water quality constraints, primarily increased temperature levels within Almaden Lake, the likelihood of lamprey (both adults and ammocoetes) occurring within the Project site is low.

Passage

The Guadalupe River, Guadalupe Creek, and Alamitos Creek are known to support anadromous fish species including Central California Coast (CCC) steelhead, Central Valley fall-run Chinook salmon and Pacific lamprey. The District modified the 13-foot Alamitos drop structure and installed a fish ladder in 1999, which now provides access to over sixteen miles of salmonid spawning and rearing habitat in Guadalupe and Alamitos Creeks. This spawning and rearing habitat had been off limits to migrating salmonids at least since the 1930s when water diversions began at the Alamitos drop structure (SCBWMI, 2000). As part of the Guadalupe River Flood Control Project and other District operations, fourteen major fish passage improvements have occurred in the watershed since 1994. These improvements include a major geomorphic restoration project, installation of large woody debris, and weir retrofits. (Smith, 2013). Additionally, Masson Dam, a diversion structure on Guadalupe Creek upstream of the confluence with Alamitos Creek, was laddered in 2000 (URS, 2012). Adult migrating salmonids and lamprey must pass through Almaden Lake to reach spawning habitat in Alamitos and Calero creeks. Likewise, juvenile salmonids and lamprey must pass through the lake during out-migration to the ocean (SCVWD, 2015).

Almaden Lake and its hydrologic connectivity with Alamitos Creek create a potential non-physical barrier to fish passage. Impaired water quality, risk of entrainment, and predation pressure from nonnative predatory fish species within Almaden Lake may prevent the successful migration of native migratory fish upstream or downstream through the watershed. Due to the unnaturally varied depths within the lake, and the lake's large surface area to volume ratio, surface temperatures of the lake are elevated compared to the upstream Alamitos Creek source water. These elevated seasonal water temperatures present a potential thermal impediment to steelhead and other anadromous fish (SCBWMI, 2003). However, during migration season, when anadromous fish are most likely to be moving through Almaden Lake, water temperatures are not likely to be high enough to create a thermal barrier to passage. Tracking studies conducted by the District has shown juvenile fish traveling from Guadalupe Creek through Almaden Lake into Alamitos Creek (Leal pers. comm. 2019).

However, during summer months, seasonal warm temperatures extend downstream of the lake into the Guadalupe River, as warm water released from the lake travels downstream. The elevated temperatures and lacustrine habitat in the lake also supports nonnative fish species that potentially prey on steelhead and other native species. Entrainment of anadromous fish in the lake is also possible, making it difficult for steelhead and other anadromous fish to find the source stream at the upstream end of the lake (SCVWD, 2013).

3.E.2 Regulatory Setting

This subsection briefly describes federal, state, and local regulations, permits, and policies pertaining to biological resources and wetlands as they apply to the Project.

Federal Regulations

Federal Endangered Species Act

Under FESA, the Secretary of the Interior and the Secretary of Commerce have joint authority to list a species as threatened or endangered (16 U.S. Code [USC] 1533[c]). The U.S. Fish and Wildlife Service (USFWS) has jurisdiction over plants, wildlife, and resident fish, while NMFS has jurisdiction over anadromous fish and marine fish and mammals. On January 5, 2006, the CCC steelhead DPS, including all naturally spawned anadromous steelhead populations below natural and manmade impassable barriers, were listed as threatened under FESA by NMFS (71 FR 834).

Magnuson-Stevens Fisheries Conservation Act

In response to growing concern about the status of U.S. fisheries, the Sustainable Fisheries Act of 1996 (Public Law 104-297) was passed by Congress to amend the Magnuson-Stevens Fishery Conservation and Management Act (Public Law 94-265), the primary law governing marine fisheries management in the federal waters of the United States. Under the Sustainable Fisheries Act, consultation is required by NMFS on any activity that might adversely affect designated Essential Fish Habitat (EFH). EFH includes those habitats that fish rely on throughout their life cycles. It encompasses habitats necessary to allow sufficient production of commercially valuable aquatic species to support a long-term sustainable fishery and contribute to a healthy ecosystem.

State Regulations

California Endangered Species Act

Pursuant to CESA and Section 2081 of the California Fish and Game Code, a permit from CDFW is required for projects that could result in take of a state-listed threatened or endangered species. There are no fish species state listed as threatened or endangered under CESA in the Almaden Lake Study Area.

California Fish and Game Code Sections 1602 and 5515

Under Sections 1600–1616 of the California Fish and Game Code, the CDFW regulates activities that would substantially divert, obstruct the natural flow of, or substantially change rivers, streams, and lakes through the issuance of a lake or Streambed Alteration Agreement. The jurisdictional limits of the CDFW are defined in Section 1602 of the Fish and Game Code as the "bed, channel, or bank of any river, stream, or lake". Activities that would "deposit or dispose of debris, waste, or other material containing crumbled, flaked, or ground pavement where it may pass into any river, stream, or lake" are prohibited by the CDFW unless a streambed alteration agreement is issued.

Local Plans and Policies

City of San José Envision Plan (2011)

The *Envision San José 2040 General Plan* sets forth a vision and a comprehensive road map to guide the City's continued growth through the year 2040. The following policies within the Plan relate to biological resources potentially affected by the Project.

> **ER-2.4.** When disturbances to riparian corridors cannot be avoided, implement appropriate measures to restore, and/or mitigate damage and allow for fish passage during construction.
>
> **ER-4.1.** Preserve and restore, to the greatest extent feasible, habitat areas that support special-status species. Avoid development in such habitats unless feasible alternatives exist and mitigation is provided of equivalent value.
>
> **ER-9.5.** Protect groundwater recharge areas, particularly creeks and riparian corridors.

Santa Clara Valley Water District Stream Maintenance Guidelines (2014)

The District Stream Maintenance Guidelines provide the framework for the District's Stream Maintenance Program (SMP). The SMP is a long-term and ongoing District program, initially developed in 2001 to define and improve the management and maintenance of flood control channels and streams under the District's authority. The SMP establishes programmatic guidance for the District's routine stream maintenance activities to facilitate avoidance and minimization of environmental impacts. The SMP also provides the organizational framework to oversee routine maintenance activities, keeping the Program compliant with the terms and conditions of its permits. All in-channel work would be consistent with the impact avoidance measures and BMPs designated under the SMP, as well as, explicit recommendations to minimize impacts of special-status fish species made by NMFS in the 2014 Biological Opinion (BO) issued for the program.

3.E.3 Impacts and Mitigation Measures

Significance Criteria

Consistent with the CEQA Guidelines, the Project would have a significant impact related to fisheries resources if the Project were to:

- Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations or by the CDFW, USFWS, or NMFS;
- Interfere substantially with the movement of any native resident or migratory fish species; or;
- Conflict with any local policies or ordinances protecting fisheries resources or with an adopted Habitat Conservation Plan or other conservation plan relevant to fish or fisheries.

Approach to Analysis

Avoidance and Minimization Measures Incorporated into the Project

Avoidance and minimization measures are those parameters that have been built into the design of the Project and are committed to as part of Project implementation. These measures are included in the Project Description (Section 2.E.1) of this report, but where appropriate, the specific measures related to the impact evaluations are also summarized below.

District Best Management Practices

The following avoidance and minimization measures are contained in the District's Best Management Practices (BMP) Handbook (SCVWD, 2014a), and have been incorporated into the Project. These measures would generally help to reduce the intensity of impacts to fisheries resources associated with the Project, in accordance with District policy.

Best Management Practices

BI-2. Minimize Impacts to Steelhead.

BI-3. Remove Temporary Fill.

BI-9. Restore Riffle/Pool Configuration of Channel Bottom.

HM-7. Restrict Vehicle and Equipment Cleaning to Appropriate Locations

HM-8. Ensure Proper Vehicle and Equipment Fueling and Maintenance

HM-9. Ensure Proper Hazardous Materials Management

HM-2. Minimize Use of Pesticides

HM-4. Comply with All Pesticide Usage Requirements

HM-5. Comply with Restrictions on Herbicide Use in Upland Areas

HM-6. Comply with Restrictions on Herbicide Use in Aquatic Areas

Santa Clara Valley Habitat Plan

Although the Santa Clara Valley Habitat Plan (2012) (SCVHP) does not cover fish species, the following avoidance and minimization measures are also included as part of the Project to benefit fish species and their habitats; a general discussion of these measures is presented in the SCVHP.

Habitat Plan Conditions

Condition 1. Avoid Direct Impacts on Legally Protected Plant and Wildlife Species

Condition 3. Maintain Hydrologic Conditions and Protect Water Quality

Condition 4. Avoidance and Minimization for In-Stream Projects

Condition 5. Avoidance and Minimization Measures for In-Stream Operations and Maintenance

Condition 11. Stream and Riparian Setbacks

Condition 12. Wetland and Pond Avoidance and Minimization

Habitat Plan Avoidance and Minimization Measures

1. Minimize the potential impacts on covered species most likely to be affected by changes in hydrology and water quality.

15. If native fish or non-covered, native aquatic vertebrates are present when cofferdams, water bypass structures, and silt barriers are to be installed, a native fish and aquatic vertebrate relocation plan shall be implemented when ecologically appropriate as determined by a qualified biologist to ensure that significant numbers of native fish and aquatic vertebrates are not stranded.

Prior to the start of work or during the installation of water diversion structures, native aquatic vertebrates shall be captured in the work area and transferred to another reach as determined by a qualified biologist. Timing of work in streams that supports a significant number of amphibians will be delayed until metamorphosis occurs to minimize impacts to the resource. Capture and relocation of aquatic vertebrates is not required at individual project sites when site conditions preclude reasonably effective operation of capture gear and equipment, or when the safety biologist conducting the capture may be compromised.

Listed species not covered by the Habitat Plan will not be relocated without the appropriate permits and authorizations from the correct agencies.

Relocation of native fish or aquatic vertebrates may not always be ecologically appropriate. Prior to capturing fish and/or vertebrates, the qualified biologist will use factors, including site conditions, system carrying capacity for potential relocated fish, and flow regimes (e.g., if flows are managed) to determine whether a relocation effort is ecologically appropriate. If so, the following factors will be considered when selecting release site(s):

1. Similar water temperature as capture location;
2. Ample habitat availability prior to release of capture individuals;

3. Presence of other same species so that relocation of new individuals will not upset the existing prey/predation function;
4. Carrying capacity of the relocation location;
5. Potential for relocated individual to transport disease; and
6. Low likelihood of fish reentering work site or becoming impinged on exclusion net or screen.

Proposals to translocate any covered species will be reviewed and approved by the Wildlife Agencies.

20. Conditions for fish passage shall be met as long as the diversion;

1. Maintains contiguous flows through a low flow channel bed or an artificial open channel,
2. Presents no vertical drops exceeding six (6) inches and follows the natural grade of the site,
3. Maintains flow at the downstream end of the diversion within 1 cubic foot per second (cfs) of flows at the upstream end, and
4. Maintains adequate water depths in the bypass channel to ensure no impediment to upstream or downstream movement of fish is imposed.

44. Maintenance of natural stream characteristics consistent with the stream section, such as riffle-pool sequences, riparian canopy, sinuosity, floodplain, and natural channel bed, will be incorporated into the Project design.

78. In-stream projects occurring while the stream is flowing must use appropriate measures to protect water quality, native fish and covered wildlife species at the Project site and downstream of the Project site.

Impact Summary

Table 3.E-2 provides a summary of fisheries resource impacts by implementation phase (construction and operations).

TABLE 3.E-2
SUMMARY OF FISHERIES RESOURCES IMPACTS

Impact Statement	Construction	Operation
Impact 3.E-1: Construction and operation of the Project would have a substantial effect on special-status native fish and their aquatic habitat in Almaden Lake and Alamitos Creek.	LSM	LS
Impact 3.E-2: Construction and operation of the Project would not interfere substantially with the movement or migration of native fish species, including Central California Coast steelhead DPS.	LS	LS
Impact 3.E-3: The Project would not conflict with any local policies or ordinances protecting fisheries resources or with an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan relevant to fish or fisheries.	LS	LS

LS = Less than significant
LSM = Less than significant with mitigation

Impacts and Mitigation Measures

Impact 3.E-1: Construction and operation of the Project would have a substantial effect on special-status native fish and their aquatic habitat in Almaden Lake and Alamitos Creek. (Less than Significant with Mitigation)

Construction Impacts

All in-water construction activities would occur outside of the normal rainy season, typically between June 1 and October 15, when flows in Alamitos Creek are at their lowest, and special-status anadromous fish species are least likely to occur within the Project site. All work will be done consistent with BMP BI-2, which prohibits use of equipment in live creeks, and SCVHP Avoidance and Minimization Measures 1,15, 20, 44, and 78 which require the minimization of impacts from changes in hydrology and water quality, implementation of a native fish and aquatic vertebrate relocation plan, captured native aquatic vertebrates be transferred to another appropriate location, fish passage be maintained as feasible, and nature stream characteristics be incorporated into the design.

As discussed in Section 2.E.2, Construction Phases, once the lake water level is reduced, boat based electrofishing would commence to capture as many fish from the lake as possible. Prior to draining the western portion of Almaden Lake, the inlet and outlet of the lake would be isolated using block nets to avoid any movement of fish into the lake. Due to the nature and amount of in-water work required by the Project, construction activities, including fish relocation activities could result in the accidental take of special-status native fish even with the implementation of project elements, BMPs, and Avoidance and Minimization Measures discussed above. **This would be a significant impact.**

To minimize the severity of this impact, the District would implement **Mitigation Measure 3.E-1 (Native Fish Capture and Relocation).** This measure requires the preparation and implementation of a capture and relocation plan with specific components to minimize impacts to steelhead, salmon, and lamprey, should any be present, during electrofishing, capture and relocation. With this measure in place the risk of take of special status species would be **minimized to a less than significant level with mitigation**.

Water and Sediment Quality Impacts

Installation of a sheet-pile cofferdam prior to dewatering has the potential to result in short-term, temporary disturbance and resuspension of benthic sediments. Sediment resuspension has the potential to increase the exposure of harmful chemicals, in particular methylmercury, sequestered in the sediment to special status fish species in the immediate area, and result in adverse water quality and biological effects (Tetra Tech & Wetlands and Water Resources, 2013). Suspended sediments in the water column can lower levels of dissolved oxygen, increase concentrations of suspended solids, and possibly release chemicals present in the sediments into the water column. However, increased turbidity levels would be relatively short-lived and generally confined to within a few hundred feet of the activity. After initially high turbidity levels, sediments would disperse and deposit, and background levels would be expected to be restored within hours of disturbance.

Construction-related contaminants such as fuels, oils, hydraulic fluids, and other chemicals/compounds used in construction activities can be introduced accidentally through spills into waterways directly, or incrementally through surface runoff from haul routes and staging areas. Contaminants in sufficient concentrations could be toxic to fish and prey organisms occupying adjacent aquatic habitats or could alter oxygen diffusion rates and cause acute and chronic toxicity to aquatic organisms, thereby reducing growth and survival and possibly causing mortality of special-status native fish. All in-water work would occur during the specified in-water work window during the dry season, the District would implement BMPs HM-7, HM-8, HM-9 and a Stormwater Pollution Prevention Plan (SWPPP) would be developed to implement both sediment and erosion control measures, with other measures to control chemical contaminants. The SWPPP (discussed in greater detail in Section 3.K, Hydrology and Water Quality - see specifically Section 3.K.3, Statewide General Permit for Construction Activity). With the in-water work window, District BMPs, development and implementation of a SWPPP, and compliance with the General Permit would protect water quality by working within the dry season, ensuring appropriate sediment and erosion control measures and containment of chemical contaminants, the Project would have a **less than significant impact** on special-status native fish and their aquatic habitat.

Underwater Noise Impacts

A sheet pile cofferdam would be installed with a vibratory pile driver prior to draining of the lake and fish relocation. Vibratory pile drivers produce sound waves that can be perceived and are potentially harmful for fish. Hydrostatic pressure waves and vibration generated by pile driving can adversely affect all life stages of fish. Hydrostatic pressure waves have the potential to rupture the swim bladders and other internal organs of all life stages of fish, and could permanently injure their inner ears and lateral line organs (Hastings and Popper, 2005). These injuries could reduce the ability of fish (including special-status fish species) to orient in the water column, capture prey, and reduce the ability of fish to avoid predators (CalTrans, 2015).

An interagency working group, including members from NMFS and USFWS, has established interim criteria for evaluating underwater noise impacts from pile driving on fish (Fisheries Hydroacoustic Working Group, 2008). This working group identified a peak sound pressure level of 206 decibels (dB) and an accumulated sound exposure level (SEL)[1] of 187 dB as thresholds for injury to fish. For fish weighing less than 2 grams, the accumulated SEL threshold is reduced to 183 dB. Although there has been no formal agreement on a “behavioral” threshold, NMFS uses 150 dB as the threshold for adverse behavioral effects (CalTrans, 2015).

[1] Sound exposure level (SEL) is defined as the constant sound level acting for 1 second, which has the same amount of acoustic energy as the original sound. Expressed another way, the sound exposure level is a measure of the sound energy in a single pile driver strike. Accumulated SEL ($SEL_{accumulated}$) is the cumulative SEL resulting from successive pile strikes. $SEL_{accumulated}$ is based on the number of pile strikes and the SEL per strike; the assumption is made that all pile strikes are of the same SEL.

Based on empirical data from actual construction sites, peak sound pressures from installing a sheet pile cofferdam with a vibratory driver are estimated to be below thresholds for injury and/or mortality.

Sheet piles installed with vibratory driver (CalTrans 2007; Table 1.2-2 from compendium data):

- Peak[2] = 175 (typical) -182 (loudest) dB
- Sound exposure level (SEL) = 160-165 dB

Estimated pressures are above thresholds for behavioral effects (150 dB threshold); however, behavioral effects on special-status native fish are not expected to be an issue due to timing restrictions (seasonal work window and only conducting pile driving during daylight hours), which would limit the number of special-status fish present in the area. For most species with migratory life stages that have the potential to be present, only a small portion of the population is expected to be exposed to the increased underwater sound levels because these increases generally would occur outside of peak migration periods.

Based on a review of the construction techniques (e.g., use of vibratory sheet pile drivers and in-water work window), NMFS threshold criteria for harm and injury, and empirical data from actual construction sites, underwater sound effects on fish species are likely to be low and this impact would be **less than significant**.

Summary

The installation of sheet piles and the draining of the lake could result in impacts to special-status fish; although low numbers of these species are expected to be in the Project area due to the timing of construction activities (in the dry season and outside of migration periods) and the low habitat value of the existing lake. The use of vibratory pile drivers for the sheet pile would minimize impacts from underwater noise to less than harmful levels. Fish capture and relocation activities could have a significant impact to special-status species, but would be minimized with the implementation of Mitigation Measure 3.E-1. Once draining of the lake is complete, aquatic species would be fully excluded from the construction area and there would be no further impacts to special-status fish species from construction.

Operational Impacts

The Project would alter the structure of existing habitat within the Project site. Overall post-Project conditions should provide substantial benefit to native fish species through the restoration of Alamitos Creek to a more natural state with a stable geomorphic channel design comprised of a riffle-pool-run pattern, designed to neither aggrade nor degrade. The slope and riffle-pool-run pattern would be similar to the channel located immediately upstream of the Project site. This pattern would stretch the length of the restored creek. Existing water quality and hydrologic concerns that may limited anadromous species from

[2] Peak sound pressure refers to the highest absolute value of a measured waveform (i.e., sound pressure pulse as a function of time).

moving through the lake, including barriers of temperature, dissolved oxygen, and flow would be ameliorated by the Project.

Native fish would not be re-introduced into the separated lake. Almaden Lake water quality would continue to be monitored by the City for bacteria and by District staff for mercury and methylmercury concentrations.

Maintenance Activities

Future maintenance within the Project site would likely consist of vegetation management on the levee, repair of any erosion along the banks of the Alamitos Creek channel, and removal of sediment deposition in the channel Sediment removal or erosion repair could require a variety of heavy equipment, as well as a temporary cofferdam if flows must bypass the maintenance site. The District anticipates sediment removal of 5,000 cubic yards in the Project footprint every 10 years. Excavated sediment would be reused on site where feasible, or would be disposed of at a landfill or other suitable site, in accordance with applicable disposal requirements. All sediment removal activities would be conducted consistent with applicable BMPs designated for in-stream sediment removal and bank stabilization operations as described in the District's Stream Maintenance Guidelines and the corresponding NMFS BO for the District Stream Maintenance (2014). Any sediment removed would be tested for contaminants, including mercury, before reuse would occur.

Vegetation management could include the use of pesticides to manage emergent and near-water invasive vegetation. The District would implement BMPs HM-2, HM-4, HM-5, and HM-6 any time pesticides would be necessary. These measures limit the amount and timing of pesticide use to protect human health and the environment. Although the use of pesticides could result in water quality degradation and thus to special-status fish, particularly if pesticides come in direct contact with water or rainfall the implementation of BMPs would ensure that impacts related to the use of pesticides is minimized.

As future maintenance in the channel would be limited and be subject to District BMPs, **impacts from maintenance to special-status fish would be less than significant**.

Native fish would be excluded from the separated lake in the future and maintenance activities associated with the lake would have no impact on special-status fish.

Mitigation Measures

Mitigation Measure 3.E-1: *Native Fish Capture and Relocation*. The District and/or contractor shall expand and implement the fish relocation plan as required under SCVHP Avoidance and Minimization Measure 15 consistent with the following conditions:

- Before fish rescues are attempted resource agency authorization shall be obtained
- Upon arrival at the site, qualified biologists shall determine the extent of the dryback and if there shall be any immediate or foreseeable impacts to fish and

wildlife. This includes a reconnaissance survey of the dryback zone to establish an operational response.

- Before dewatering can begin, the following fish relocation elements shall be determined:
  - *Staging Area*: Identify staging areas in the dryback zone. Sites should be selected on the basis of proximity and access to the dryback zone and safe operation of the equipment.
  - *Relocation Sites*: Priority shall be given to close proximity to the dryback zone within the same stream; if it is determined by a qualified on-site biologist that no suitable site within the stream is available, then "second choice" locations within the watershed shall be selected. In all cases, the closest site that is likely to result in a successful rescue shall be used.
  - *Transportation Routes*: Transport routes for rescued fish species shall be determined in advance.
  - *Downstream vs. Upstream*: Species rescued shall be transported downstream if possible and upstream only for short distances if downstream sites are not feasible.
  - *Disease Consideration*: Fish shall not be moved upstream over substantial barriers or long distances upstream to guard against disease transmission.
- *Salmonids*: If salmonids are encountered during relocation, they should be moved upstream to a location of perennial running water or the best available habitat determined by a qualified biologist. Collection and transport methods shall be determined per site conditions. Methods shall also be selected to maximize efficiency of collection effort while minimizing handling and transport time and stress. Creek water from the site shall be used in all containers. Local transport of fish may be executed by various methods including:
  - *Net transfer*: Appropriate for short distances where rapid transfer is possible.
  - *Live car*: Appropriate for temporary holding in stream and short distances where rapid transfer is required.
  - *Bucket*: Appropriate for temporary holding and transport over short-medium distances. Holding time should be minimized if possible or supplemental aeration supplied.
  - *Aerated cooler*: Appropriate for temporary holding and transport of long distances. Temperature shall be maintained similar to source creek water, and if necessary fish shall be sorted by size to reduce risk of predation.
- Prioritization of species and collection/relocation sites to be prioritized as follows:
  - Endangered species
  - Threatened species
  - Species of special concern
  - Native fishes not under the above categories
  - Non-native fishes if appropriate

- Notify Resource Agencies: Identify a point person to contact at appropriate resource agencies (CDFW, NMFS, and USFWS). At least 24 hours in advance, notify appropriate resource agencies to communicate the details of the fish relocation and to confirm disposition instructions.

- Fish relocation shall be conducted in concurrence with the following conditions:

  – *Setup*: Upon arrival at the site, review the operational sequence and logistics and designate field assignments. Conduct a review of safety and operational methods.

  – *Live well Operation*: If necessary, set up live wells early in the operation to stabilize tank conditions.

- Use local “native” water to fill live wells if available and clean

- To lessen stress on fish, reduce or manage temperature in live wells to be compatible with the water temperatures in which the fish were encountered.

- Start the aeration system prior to placing fish into the live well to ensure that sufficient oxygen is present during the adjustment period. When salmonids are placed in the live well, managed the live well to the extent possible so that the dissolved oxygen concentration shall be greater than 6 mg/l but less than saturation.

  – *Electrofishing Operation*: Adjust the electrofishing unit settings to the conductivity and temperature of the water. Adjust setting for either varying width (wide to narrow) or varying frequency (high to low) to minimize possible fish injury when these settings elicit proper taxis for fish capture.

- Record the settings used and any incidental electrofishing mortalities in the field notebook. If electrofishing mortalities for salmonids and other species listed as threatened or endangered exceed 5% of the total capture, electrofishing activities shall be reevaluated and possibly terminated.

- Note fish other than salmonids that are mortalities from electrofishing activities shall be used as an indicator of possible injury or mortality rate to salmonids and other fish.

  – *General Collection Guidelines*: Execute collection of fish in a manner to minimize handling time and stress, yet maintain the safety of personnel.

- Use multiple buckets and/or live cars to reduce crowding during collection and transfer.

- Pre-sort fish as needed for transport.

- Equip buckets that hold salmonids with portable aerators until subsequent transfer to a live well.

  – *Transport*: Transport fish to minimize holding time an alternately sequenced in tandem with ongoing collection activities.

- Continue normal live well operations during transport.

  – *Records and Data*: Inventory fish and record other pertinent data, including species, numbers of each species, disposition, and other data such as fork length. If conditions preclude a complete inventory, at a minimum, document species present, their disposition, and an estimate of their abundance.

- Record information on ambient site conditions (available habitat/water quality), including photo documentation at collection and release sites, as appropriate and other information on collection, handling, and transport.
- At completion, conduct an assessment of the fish relocation to identify lessons learned, estimate the number of individual fish and fish species moved and determine the mortality rate. Report shall be forward to the appropriate resource agencies and interested parties.

Significance after Mitigation: Less than Significant. With implementation of Mitigation Measure 3.E-1 (Native Fish Capture and Relocation), which requires the preparation and implementation of a capture and relocation plan with specific components to minimize impacts to steelhead, salmon, and lamprey, should any be present, during electrofishing, capture and relocation the risk of take of special status species would be **reduced to a less than significant level with mitigation**.

Impact 3.E-2: Construction and operation of the Project would not interfere substantially with the movement or migration of native fish species, including CCC steelhead DPS. (Less than Significant)

Construction Impacts

Central California Coast steelhead DPS, Fall-Run Chinook salmon, and Pacific lamprey are known to migrate through the Project site. All in-water work would occur during the dry season, outside typical migratory windows for these species. Native fish remaining in the Project area during construction would be resident during the season. Alamitos Creek would be blocked with a diversion structure during the draining of the lake and grading of the restored channel during the construction season, but adequate habitat for native fish would be available upstream in Alamitos Creek and downstream of the Project area in Guadalupe Creek. Construction activities would be concluded prior to the rainy season that marks the beginning of migration periods for native fish and the migration pathway would be available. As few native fish would typically migrate through the Project area during the construction period, other habitat is available for these species, and the Project would be fully available during migration season, **the impact to the movement and migration of native fish species is less than significant.**

Operational Impacts

Native Fish Species

Completion of the Project would facilitate increased movement of native fish species within the Project site and throughout the watershed. The restored Alamitos Creek channel would allow migratory fish species easier access to spawning grounds within the headwaters of the Alamitos Creek watershed and reduce in-stream temperatures downstream of the lake.

When the Alamitos Flashboard Dam in place, approximately 200 feet of the restored creek channel within the Almaden Lake Project footprint would remain as an impoundment. The Alamitos Flashboard Dam is only in place seasonally (April-December), which is outside of peak of adult steelhead up-migration (December-April), and only for portions of the juvenile fish outmigration (December-June) when steelhead are most vulnerable to entrainment. No change in Flashboard operations would occur under the Project.

Additionally, implementation of the Project is likely to reduce the overall number of, and predation pressure from, non-native predatory fish species, which are currently common in Almaden Lake. The conversion of the warm, lacustrine Almaden Lake habitat to a swift, fluvial stream channel reflects a shift away from the preferred habitat condition of exotic fish species towards the historic native environment.

The restored Almaden Lake and Alamitos Creek channel would be subject to future maintenance operations, conducted by the District, most likely in the form of sediment removal and bank stabilization operations. These activities are projected to occur only once every ten years, and would be done consistent with the District's SMP and would eventually be covered by the SMP in future renewal of the program. As such, they would comply with the impact avoidance and BMPs described in the *2014-2023 SMP Manual* and the commensurate NMFS BO (2014). Therefore, operational phase impacts would be **less than significant**.

Mitigation Measures

None required.

Impact 3.E-3: The Project would not conflict with any local policies or ordinances protecting fisheries resources or with an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan. (Less than Significant)

Construction and Operation Impacts

Due to the nature of the Project some amount of in-water work in unavoidable. However, Project design requirements and mitigation measures would be implemented to avoid and minimize impacts to fisheries resources within Almaden Lake and Alamitos Creek. Overall, the Project would be beneficial to native fish species, aquatic and riparian habitat, and flow and water quality conditions in Alamitos Creek. Although fish species are not covered by the SCVHP, the Project would comply with Habitat Plan conditions 3 (Maintain Hydrologic Conditions and Protect Water Quality, 4 (Avoidance and Minimization for In-Stream Projects), and 5 (Avoidance and Minimization Measures for In-Stream Operations and Maintenance), which would ensure impacts to native fish species are minimized. As a result, the Project would be consistent with the criteria of the SCVHP and other local ordinances protecting aquatic resources. After Project completion, ongoing stream maintenance activities would be consistent with the impact avoidance measures and BMPs detailed District's Stream Maintenance Guidelines and further elaborated in the accompanying NMFS

BO. As described above, the Project would not conflict with any local policies or plans protecting fisheries resources, resulting in a **less than significant impact**.

Mitigation Measures

None required.

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3.F Cultural Resources and Tribal Cultural Resources

This section describes the environmental and regulatory setting of the Project site and surrounding area with respect to cultural resources and tribal cultural resources, and includes an analysis of impacts to those resources from the Project. For this assessment, cultural resources include architectural resources, archaeological resources, and human remains. Tribal cultural resources include sites, features, places, cultural landscapes, sacred places, or objects that are of cultural value to a Native American tribe. The setting discussion describes the existing Project vicinity and assesses whether there are historical resources for the purposes of CEQA. The impact discussion reviews the criteria for significant impacts on cultural resources and historical resources. The methodology used in the cultural resources analysis included a literature review and field reconnaissance by qualified cultural resource personnel. If needed, District best management practices (BMPs) and mitigation measures to avoid or reduce significant impacts are also identified.

Area of Potential Effect. The term Area of Potential Effect (APE) is used throughout this section to describe the maximum area, surface and subsurface, that could experience ground disturbance as a result of Project activities, including access and staging areas. This includes all locations described in the Project Description (Chapter 2) as well as the entire park boundaries to provide for flexibility in design change, access, and staging areas. The APE consists of the study area, as shown on Figure 2-1. The APE consists of approximately 68 acres. At the north end of the lake near Coleman Road, water from Almaden Lake would be discharged via pipeline to the Los Alamitos Percolation Pond, and this area is included in the APE. The APE also includes the connecting pipeline to the Almaden Valley Pipeline, which would be constructed within or immediately adjacent to the paved Los Alamitos Creek Trail. The pipeline would be installed in a trench no greater than 5 feet wide and up to approximately 20 feet deep. The length of the pipeline is 2,900 feet. One staging area is also included in the APE: the District's Winfield Warehouse yard (currently paved and used as parking/staging consisting of 1.5 acres). Additional staging would also take place within the existing footprint of the lake and park, during the construction process.

Depth of ground disturbance would vary with Project components but would not exceed 20 feet below existing ground surface, including the existing lake bottom surface.

3.F.1 Environmental Setting

This section includes information on the prehistoric and historic development within the Project vicinity and identifies existing recorded resources. National, state, and local historic preservation listings and surveys are summarized in this section.

Regional Setting

Archaeological and Historic Setting

Natural Environment

The Project is in the Santa Clara Valley south of the San Francisco Bay. The hills surrounding the Valley are the source of many perennial streams, which run from the hills to the San Francisco Bay. The flood plains of these waterways are prone to flooding in their natural state, with engineered levees providing flood protection.

The Santa Clara Valley exhibits a Mediterranean climate, with year-round moderate temperatures, mild weather, and 14–15 inches of rainfall per year. This type of climate is subject to recurring and sometimes long-lasting droughts.

The San Francisco Bay Area and the surrounding region contain an abundance of natural resources, which would have been taken advantage of by early Native and non-Native populations. The South Bay specifically hosts a wide variety of natural communities, including salt marsh, scrub brush, grassland, and foothill woodlands. Deer, elk, and waterbirds were plentiful, as were marine and Bay resources such as seals, otters, abalone, mussels, oysters, clams and numerous fish species. Franciscan chert was an easily obtainable local raw material for stone tools. Obsidian could be obtained from the Annadel and Napa Glass Mountain quarries to the north (Moratto, 1984).

The region has undergone dramatic landscape changes since humans began to inhabit the region more than 10,000 years ago. Rising sea levels and increased sedimentation into streams and rivers are among some of the changes (Helley et al., 1979). In many places, the interface between older land surfaces and alluvial fans are marked by a well-developed buried soil profile, or a paleosol. Paleosols preserve the composition and character of the earth's surface prior to subsequent sediment deposition; thus, paleosols have the potential to preserve archaeological resources if the area was occupied or settled by humans (Meyer and Rosenthal, 2007). Because human populations have grown since the arrival of the area's first inhabitants, younger paleosols (late Holocene) are more likely to yield archaeological resources than older paleosols (early Holocene or Pleistocene).

Geologic maps indicated that Almaden Lake Park is in an area of Holocene alluvium and stream terrace deposits. As evidenced by other locations in the general vicinity of the City of San José and the South Bay, these geologic formations have a high potential to contain archaeological sites buried by natural alluvial processes (Meyer and Rosenthal, 2007). Previous ground disturbance from excavation of the quarry and construction of Almaden Lake Park and the surrounding facilities significantly lessens the archaeological potential. Additionally, previous survey efforts have not identified archaeological sites in the APE, including efforts completed prior to park construction (Edwards, 1974).

Prehistory

Categorizing the prehistoric period into cultural stages allows researchers to describe a broad range of archaeological resources with similar cultural patterns and components during a given timeframe, thereby creating a regional chronology. Milliken et al. (2007) provide a framework for the interpretation of the San Francisco Bay Area and have divided human history in the San Francisco Bay Area into four periods: the *Paleoindian Period* (11,500 to 8000 B.C.), the *Early Period* (8000 to 500 B.C.), the *Middle Period* (500 B.C. to A.D. 1050), and the *Late Period* (A.D. 1050 to 1550). Economic patterns, stylistic aspects, and regional phases further subdivide cultural patterns into shorter phases. This scheme uses economic and technological types, socio-politics, trade networks, population density, and variations of artifact types to differentiate between cultural periods.

The *Paleoindian Period* (11,500 to 8000 B.C.) was characterized by big-game hunters occupying broad geographic areas. Evidence of human habitation during *Paleoindian Period* has not yet been discovered in the San Francisco Bay Area. During the *Early Period* (*Lower Archaic*; 8000 to 3500 B.C.), geographic mobility continued from the *Paleoindian Period* and is characterized by the millingslab and handstone as well as large wide-stemmed and leaf-shaped projectile points. The first cut shell beads and the mortar and pestle are documented in burials during the *Early Period* (*Middle Archaic*; 3500 to 500 B.C.), indicating the beginning of a shift to sedentism.

During the *Middle Period*, which includes the *Lower Middle Period* (*Initial Upper Archaic*; 500 B.C. to A.D. 430), and *Upper Middle Period* (*Late Upper Archaic*; A.D. 430 to 1050), geographic mobility may have continued, although groups began to establish longer-term base camps in localities from which a more diverse range of resources could be exploited. The first rich black middens are recorded from this period. The addition of milling tools, obsidian and chert concave-base projectile points, and the occurrence of sites in a wider range of environments suggest that the economic base was more diverse. By the *Upper Middle Period*, mobility was being replaced by the development of numerous small villages. Around A.D. 430 a dramatic cultural disruption occurred evidenced by the sudden collapse of the *Olivella* saucer bead trade network.

During the *Initial Late Period* (*Lower Emergent*; A.D. 1050 to 1550), social complexity developed toward lifeways of large, central villages with resident political leaders and specialized activity sites. Artifacts associated with the period include the bow and arrow, small corner-notched projectile points, and a diversity of beads and ornaments.

Ethnohistory

Based on a compilation of ethnographic, historic, and archaeological data, Milliken (1995) describes a group known as the Ohlone, who once occupied the general vicinity of the Project. While traditional anthropological literature portrayed the Ohlone peoples as having a static culture, today it is better understood that many variations of culture and ideology existed within and between villages. While these “static” descriptions of separations between native cultures of California make it an easier task for ethnographers to describe past behaviors, this masks Native adaptability and self-identity. California’s Native Americans never saw themselves as members of larger “cultural groups,” as described by anthropologists. Instead, they saw themselves as members of specific villages, perhaps related to others by marriage or kinship ties, but viewing the village as the primary identifier of their origins.

Levy (1978) describes the language group spoken by the Ohlone, known as “Costanoan.” This term is originally derived from a Spanish word designating the coastal peoples of Central California. Today Costanoan is used as a linguistic term that references to a larger language family spoken by distinct sociopolitical groups that spoke at least eight languages (as different as Spanish is from French) of the same Penutian language group. The Ohlone once occupied a large territory from San Francisco Bay in the north to the Big Sur and Salinas Rivers in the south. The APE is in the greater *Tamyen* tribal area occupied by the *San Juan Bautista* tribelet (Levy, 1978:485). Levy identified the primary settlement at the confluence of the Guadalupe River and Alamitos Creek; CA-SCL-406 may be the archaeological remains of this village (Anastasio et al., 1988 as cited in Basin, 1993).

Economically, Ohlone engaged in hunting and gathering. Their territory encompassed both coastal and open valley environments that contained a wide variety of resources, including grass seeds, acorns, bulbs and tubers, bear, deer, elk, antelope, a variety of bird species, and rabbit and other small mammals. The Ohlone acknowledged private ownership of goods and songs, and village ownership of rights to land and/or natural resources; they appear to have aggressively protected their village territories, requiring monetary payment for access rights in the form of clamshell beads, and even shooting trespassers if caught. After European contact, Ohlone society was severely disrupted by missionization, disease, and displacement. Today, the Ohlone still have a strong presence in the San Francisco Bay Area, and are highly interested in their historic and prehistoric past.

History

The first Europeans to visit the San Francisco Bay area were the Spanish explorers Pedro Fages and Reverend Juan Crespi, who passed through in 1772. A few years later, Juan Bautista de Anza and Father Pedro Font traveled through the region to report on favorable locations for both Mission Santa Clara and the Pueblo of San José de Guadalupe. Mission Santa Clara, founded in 1777, was one of seven missions in Ohlone territory (Hoover et al., 2002).

Almaden Lake is within Pueblo Tract No. 2 (part of the Pueblo Lands of San José) and the Rancho San Juan Bautista Narvaez. Governor Miguel Micheltorena granted the 8,880-acre Rancho San Juan Bautista to Jose Augustin Narvaez in 1844. Narvaez arrived in California in 1787 and was a former *alcalde* of San José.

Prior to the arrival of Euroamericans in the region, the Ohlone had mined for cinnabar in the Almaden area, which they used for pigment. As early as 1824, attempts were made to mine for silver and gold in the deposit. In 1845, a Mexican Army officer identified mercury (or quicksilver) in the cinnabar ore. Mercury, used to extract gold, became a very important commodity only a few years later following the discovery in Sierra Foothills. The New Almaden Mine was the largest mercury mine in North America (SCVWD, 2015).

The discovery of gold in 1848 led to a huge population boom in California, with settlers establishing themselves on Narvaez’s land grant. The 1851 California Land Claims Act required Mexican landowners in California to prove the validity of their claim on land held under Mexican titles. Narvaez's grant was patented in 1865 (Rawls and Bean, 2002). No Spanish or Mexican-era roads, buildings, or other structures or features have been located in the APE (Hendry and Bowman, 1940).

Almaden Road became a major route from San José to the New Almaden mining district. Along the road, the subdivided lands were primarily used for agriculture and livestock. No farmsteads or associated features were located within the APE (Thompson and West, 1876).

Following World War II, the agricultural land use of the area was increasingly replaced by urban and suburban development. Almaden Lake was once a privately-owned gravel quarry. The quarry operation was along the east side of Alamitos Creek and was comprised of two main large pits. Over time, heavy storm events washed away the creek's bank edge that separated the creek from the quarry, making it into one large comingled water body. Almaden Lake Park was developed as a partnership between the City and the District in the late 1970s where both agencies purchased lands encompassing the lake and surrounding park land. The lake and Park were opened for public use in 1982. Activities at the Park originally included fishing, swimming, and pedal boating.

Because Almaden Lake is located downstream from where the historic mining activities occurred, mercury-laden sediment has ended up in the lake. As a result, the water in the lake has deteriorated from the influx of elemental mercury that has settled at its bottom and is converting to methylmercury in anoxic portions of the lake as well as producing high concentrations of methylmercury in the lake fish (SCVWD, 2015). The production of methylmercury results in negative impacts to water quality and health risks in wildlife and humans (SCVWD, 2013).

Project Site

Cultural Resources Records Search and Literature Review

ESA cultural resource staff conducted a records search for the Project at the Northwest Information Center (NWIC) of the California Historical Resources Information System on September 30, 2015 (File No. 15-0510) and updated on October 5, 2018 (File No. 18-0700). The purpose of the records search was to (1) determine whether known cultural resources have been recorded within or within ¼ mile of the APE; (2) assess the likelihood for unrecorded cultural resources to be present based on historical references and the distribution of nearby sites; and (3) develop a context for the identification and evaluation of cultural resources.

Six cultural resources investigations have been completed within and adjacent to the APE. These studies consist of background research and surface surveys including three studies in Almaden Lake Park. Four of these studies included intensive survey efforts within the APE. None of the cultural resource studies that are adjacent to or include part of the Project area have identified any cultural resources within the APE.

The records search results indicate that several prehistoric archaeological sites have been previously identified in the general vicinity of Almaden Lake; none of these sites are in the APE. These sites primarily consist of sparse concentrations of lithic (obsidian) fragments. Two bedrock milling features have also been identified.

Archaeological site CA-SCL-132 is mapped immediately adjacent to APE. The site was originally recorded by archaeologist James Delgado in 1974 as a rock covered with bedrock mortars (BRMs) under an elderberry tree. The BRM is currently enclosed behind a fence and would not be impacted by the Project. Test excavations by Winter (1977) and Cartier (1980) identified subsurface artifacts in a 700 by 600 square foot area, down to a depth of approximately 90 cm as well as a Native American burial at a depth of approximately 30 cm. Artifacts included flaked stone tools, lithic debitage, baked clay, heat-affected rock, charcoal, faunal bone and shell, as well as historic-period glass, nails, and ceramics.

One historic-era architectural resource has been previously identified adjacent to the APE - the Almaden Valley Nursery. The Nursery is west of the APE and consists of an early 20th-century barn recorded in 1987.

Native American Outreach

On October 8, 2015, ESA cultural resources staff contacted the Native American Heritage Commission (NAHC) to request a search of their sacred lands files. A response was received from the NAHC on October 26, 2015 and indicated that the NAHC did not identify sacred lands within or near the APE. The NAHC provided a list of Native American individuals and organizations for Santa Clara County. On November 2, 2015, ESA sent a contact letter to each Native American individual/organization listed on the NAHC contact list that might have additional information or concerns about the Project. No response has been received as of this writing.

Cultural Resources Field Methods and Findings

On October 15, 2016, ESA conducted a pedestrian survey of the APE, examining all areas of open ground surface. The APE was surveyed in narrow, zigzag 5 to 10-meter-wide transects to examine all areas of exposed ground surface. Surface visibility varied. Landscaping covered much of the area around the lake on the west side. Rodent holes and other minor ground disturbances were closely examined in areas where vegetation obscured visibility. Soil was primarily disturbed artificial fill including light to medium brown silty sand with gravel inclusions. The District's Winfield Warehouse yard staging area is significantly disturbed from the existing use as a construction yard.

On May 3, 2016, ESA conducted a pedestrian survey of the pipeline alignments and pump station to the Los Alamitos Percolation Pond. The alignments are in areas highly disturbed from previous levee or roadway construction.

The surveys did not identify archaeological resources or other evidence of past prehistoric use or occupation in the APE. Additionally, the survey did not identify any tribal cultural resources, or historic-era architectural resources that could be considered historical resources for the purposes of CEQA.

ESA also completed an additional survey effort on October 8, 2018, focusing on the Los Alamitos Creek Trail pipeline alignment. The trail alignment was paved; the adjacent exposed surface was graded and laid with decomposed granite fill. Adjacent native soil was a light to medium brown loamy silt with gravel inclusions. In the vicinity of the known archaeological site the surface was closely inspected for any evidence of prehistoric use including dark, organic midden soil or lithic debitage; no cultural materials were identified.

3.F.2 Regulatory Setting

Federal Regulations

Cultural resources are considered through the National Historic Preservation Act (NHPA) of 1966, as amended (54 U.S.C. 306108), and it's implementing regulations. Prior to implementing an "undertaking" (e.g., federal funding or issuing a federal permit), Section 106 of the NHPA requires federal agencies to consider the effects of the undertaking on historic properties (i.e., properties listed in or eligible for listing in the National Register) and to afford the Advisory Council on Historic Preservation a reasonable opportunity to comment on any undertaking that would adversely affect properties eligible for listing in the National Register. Under the NHPA, a property is significant if it meets the National Register listing criteria at 36 CFR 60.4, as stated below:

The quality of significance in American history, architecture, archaeology, engineering, and culture is present in districts, sites, buildings, structures, and objects that possess integrity of location, design, setting, materials, workmanship, feeling, and association and that:

a) Are associated with events that have made a significant contribution to the broad patterns of our history, or

b) Are associated with the lives of persons significant in our past, or

c) Embody the distinctive characteristics of a type, period, or method of 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, or

d) Have yielded, or may be likely to yield, information important in prehistory or history.

Federal review of projects is normally referred to as the Section 106 process. This process is the responsibility of the federal lead agency. The Section 106 review normally involves a four-step procedure, which is described in detail in the implementing regulations (36 CFR Part 800):

- Identify historic properties in consultation with the State Historic Preservation Officers (SHPO) and interested parties;
- Assess the effects of the undertaking on historic properties;

- Consult with the SHPO, other agencies, and interested parties to develop an agreement that addresses the treatment of historic properties and notify the Advisory Council on Historic Preservation; and finally,
- Proceed with the project according to the conditions of the agreement.

State Regulations

The State of California implements the NHPA of 1966, as amended, through its statewide comprehensive cultural resource surveys and preservation programs. The California Office of Historic Preservation, as an office of the California Department of Parks and Recreation (DPR), implements the policies of the NHPA on a statewide level. The Office of Historic Preservation also maintains the California Historical Resources Inventory. The State Historic Preservation Officer is an appointed official who implements historic preservation programs within the state's jurisdictions.

California Environmental Quality Act

CEQA, as codified in Public Resources Code (PRC) Section 21000 et seq., is the principal statute governing the environmental review of projects in the state. CEQA requires lead agencies to determine if a project would have a significant effect on historical resources, including archaeological resources. The CEQA Guidelines define a historical resource as: (1) a resource in the California Register; (2) a resource included in a local register of historical resources, as defined in PRC Section 5020.1(k) or identified as significant in a historical resource survey meeting the requirements of PRC Section 5024.1(g); or (3) any object, building, structure, site, area, place, record, or manuscript that a lead agency determines to be historically significant or significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California, provided the lead agency's determination is supported by substantial evidence in light of the whole record.

If a lead agency determines that an archaeological site is an historical resource, the provisions of PRC Section 21084.1 and CEQA Guidelines Section 15064.5 would apply. If an archaeological site does not meet the CEQA Guidelines criteria for a historical resource, then the site may meet the threshold of PRC Section 21083 regarding unique archaeological resources. A unique archaeological resource is "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.

- Contains information needed to answer important scientific research questions and that there is a demonstrable public interest in that information.
- Has a special and particular quality such as being the oldest of its type or the best available example of its type.
- Is directly associated with a scientifically recognized important prehistoric or historic event or person" (PRC Section 21083.2 [g]).

The CEQA Guidelines note that if a resource is neither a unique archaeological resource nor a historical resource, the effects of the project on that resource shall not be considered a significant effect on the environment (CEQA Guidelines Section 15064[c][4]).

California Register of Historical Resources

The California Register is "an authoritative listing and guide to be used by state and local agencies, private groups, and citizens in identifying the existing historical resources of the state and to indicate which resources deserve to be protected, to the extent prudent and feasible, from substantial adverse change" (PRC Section 5024.1[a]). The criteria for eligibility are based on National Register criteria (PRC Section 5024.1[b]). Certain resources are determined by the statute to be automatically included in the California Register, including California properties formally determined eligible for or listed in the National Register.

To be eligible for the California Register, an historical resource must be significant at the local, state, and/or federal level under one or more 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 (PRC Section 5024.1[c]).

For a resource to be eligible for the California Register, it must also retain enough integrity to be recognizable as a historical resource and to convey its significance. A resource that does not retain sufficient integrity to meet the National Register criteria may still be eligible for listing in the California Register.

California Public Resources Code and Health and Safety Code

Several sections of the PRC protect cultural resources. Under Section 5097.5, no person shall knowingly and willfully excavate upon, or remove, destroy, injure, or deface, any historic or prehistoric ruins, burial grounds, archaeological or vertebrate paleontological site (including fossilized footprints), inscriptions made by human agency, rock art, or any other archaeological, paleontological, or historical feature situated on public lands, except with the express permission of the public agency that has jurisdiction over the lands. Violation of this section is a misdemeanor. Section 5097.98 states that if Native American remains are identified within a project area, the lead agency must work with the appropriate Native Americans as identified by the NAHC and develop a plan for the treatment or disposition of, with appropriate dignity, the human remains and any items associated with Native American burials. These procedures are also addressed in Section 15046.5 of the CEQA Guidelines. California Health and Safety Code Section 7050.5 prohibits disinterring, disturbing, or removing human remains from a location other than a dedicated cemetery. Section 30244 of the PRC requires reasonable mitigation for impacts on paleontological and archaeological resources that occur as a result of development on public lands.

Title 14, Section 4307 of the California Code of Regulations (CCR) also prohibits any person from removing, inuring, defacing, or destroying any object of paleontological, archaeological, or historical interest or value.

Assembly Bill 52

In September of 2014, the California Legislature passed Assembly Bill 52, which added provisions to the PRC regarding the evaluation of impacts on tribal cultural resources under CEQA, and consultation requirements with California Native American tribes. In particular, Assembly Bill 52 now requires lead agencies to analyze project impacts on “tribal cultural resources” separately from archaeological resources (PRC Section 21074; 21083.09). The bill defines “tribal cultural resources” in a new section of the PRC Section 21074. Assembly Bill 52 also requires lead agencies to engage in additional consultation procedures with respect to California Native American tribes (PRC Section 21080.3.1, 21080.3.2, 21082.3).

Specifically, PRC Section 21084.3 states:

a) Public agencies shall, when feasible, avoid damaging effects to any tribal cultural resource.

b) If the lead agency determines that a project may cause a substantial adverse change to a tribal cultural resource, and measures are not otherwise identified in the consultation process provided in Section 21080.3.2, the following are examples of mitigation measures that, if feasible, may be considered to avoid or minimize the significant adverse impacts:

    1) Avoidance and preservation of the resources in place, including, but not limited to, planning and construction to avoid the resources and protect the cultural and natural context, or planning greenspace, parks, or other open space, to incorporate the resources with culturally appropriate protection and management criteria.

    2) Treating the resource with culturally appropriate dignity taking into account the tribal cultural values and meaning of the resource, including, but not limited to, the following:

        (A) Protecting the cultural character and integrity of the resource.

        (B) Protecting the traditional use of the resource.

        (C) Protecting the confidentiality of the resource.

    3) Permanent conservation easements or other interests in real property, with culturally appropriate management criteria for the purposes of preserving or utilizing the resources or places.

    4) Protecting the resource.

Assembly Bill 52 applies to those projects for which a lead agency has issued a Notice of Preparation of an environmental impact report or notice of intent to adopt a negative declaration on or after July 1, 2015. As the NOP for the Project was issued on March 27, 2014, AB 52 does not apply. Regardless, Native American outreach was conducted for the Project and impacts to tribal cultural resources are analyzed below.

Local Regulations

There are no local regulations that pertain to the assessment of Project effects on cultural resources.

3.F.3 Impacts and Mitigation Measures

Significance Criteria

Implementation of the Project would have a significant impact on cultural resources if it were to:

- Cause a substantial adverse change in the significance of a historical resource pursuant to CEQA Guidelines Section15064.5;
- Cause a substantial adverse change in the significance of an archaeological resource pursuant to CEQA Guidelines Section15064.5;
- Disturb any human remains, including those interred outside of formal cemeteries;
- Cause a substantial adverse change in the significance of a tribal cultural resource, defined in PRC Section 21074.

Approach to Analysis

Architectural/Structural Resources

Impacts on architectural resources are assessed by identifying any activities that could affect resources that have been identified as historical resources for the purposes of CEQA. Properties identified as historical resources under CEQA include those that are significant because of their association with important events, people, or architectural styles or master architects, or for their informational value (California Register Criteria 1, 2, 3, and 4) and that retain sufficient historical integrity to convey their significance. Criterion 4 is typically applied to the evaluation of historic-period archaeological resources and not to architectural resources, as described below.

Once a resource has been identified as a CEQA historical resource (either architectural or archaeological), it then must be determined whether the impacts of the Project would "cause a substantial adverse change in the significance" of the resource (CEQA Guidelines Section15064.5[b]). A substantial adverse change in the significance of a historical resource means "physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings such that the significance of the historic resource would be materially impaired" (CEQA Guidelines Section15064[b][1]). A historical resource is materially impaired through the demolition or alteration of the resource's physical characteristics that convey its historical significance and that justify its inclusion in the CRHR (CEQA Guidelines Section15064.5[b][2][A]).

Archaeological Resources

The significance of most prehistoric and historic-period archaeological sites is usually assessed under California Register Criterion 4. This criterion stresses the importance of the information potentially contained within the site, rather than its significance as a surviving example of a type or its association with an important person or event. Archaeological resources may also be assessed under CEQA as unique archaeological resources, defined as archaeological artifacts, objects, or sites that contain information needed to answer important scientific research questions.

Human Remains

Human remains, including those buried outside of formal cemeteries, are protected under several state laws, including PRC Section 5097.98 and Health and Safety Code Section 7050.5. These laws are identified above in Section 3.F.2, Regulatory Setting. This analysis considers impacts including intentional disturbance, mutilation, or removal of interred human remains.

Tribal Cultural Resources

A tribal cultural resource is defined as a site feature, place, cultural landscape, sacred place or object, which is of cultural value to a tribe that is either on or eligible for the California Register or a local historic register, or the lead agency, at its discretion, chooses to treat the resource as a tribal cultural resource. This analysis considers whether the Project would cause damaging effects to a tribal cultural resource.

Avoidance and Minimization Measures Incorporated into the Project

Avoidance and minimization measures are those parameters that have been built into the design of the Project and are committed to as part of Project implementation. These measures are generally included in the Project Description (Chapter 2) of this report; no additional avoidance or minimization measures relevant to Cultural Resources have been incorporated into the Project.

No Impact Significance Determinations

There would be **no impact** related to the following criterion:

> ***Cause a substantial adverse change in the significance of a historical resource pursuant to CEQA Guidelines Section15064.5.*** The Project could result in a significant impact if it caused a substantial adverse change to a historical resource (architectural resources or the built environment, including buildings, structures, and objects). Historical resources that are also considered archaeological resources are considered below under Impact 3.F-1. Based on the results of the background research and survey effort, there are no historical architectural resources in the APE. As there are no historical resources of the built environment within the APE, the Project would have **no impacts** on historical resources.

Impact Summary

Table 3.F-1 provides a summary of cultural resources impacts by implementation phase (construction and operations).

TABLE 3.F-1
SUMMARY OF CULTURAL AND TRIBAL CULTURAL RESOURCES IMPACTS

Impact Statement	Construction	Operation
Impact 3.F-1: The Project would cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5, human remains, including those interred outside of formal cemeteries, or a tribal cultural resource as defined in PRC Section 21074.	LSM	NI

NI = No impact
LSM = Less than significant with mitigation

Impacts and Mitigation Measures

Construction Impacts

Impact 3.F-1: The Project would cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5, human remains, including those interred outside of formal cemeteries, or a tribal cultural resource as defined in PRC Section 21074. (Less than Significant with Mitigation)

Based on the records search, survey, and previous disturbance, there are no known archaeological resources, human remains, or tribal cultural resources in the APE.

Given the proximity of the connection pipeline to a known prehistoric site with human remains (CA-SCL-132), there is a heightened potential to uncover cultural materials or human remains during Project implementation. Impacts to CA-SCL-132 during Project implementation would be a **significant impact**.

Mitigation Measure 3.F-1a (Preconstruction Training and Cultural Resources Monitoring) is recommended to ensure immediate compliance with cultural resources discoveries and regulatory requirements for construction activities within 200 feet of the connection pipeline southern terminus. Implementation of Mitigation Measure 3.F-1a would reduce impacts to CA-SCL-132 to a **less than significant level**.

Despite the low potential throughout the rest of the Project area, the inadvertent discovery of archaeological resources (including those determined to be tribal cultural resources) or human remains cannot be entirely discounted. The inadvertent discovery of resources would be **a significant impact**. In the event of an unanticipated discovery, the District shall implement **Mitigation Measure 3.F-1b (Accidental Discovery of Archaeological Artifacts, Tribal Cultural Resources or Burial Remains)** to reduce impacts to previously undiscovered archaeological resources, tribal cultural resources, and human remains. Mitigation Measure 3.F-1b would reduce impacts related to archaeological resources, tribal cultural resources, and human remains to a less than significant level by requiring personnel to stop work and report finds. Implementation of this measure would ensure that avoidance or preservation in place is first considered, and if not feasible resources are documented, evaluated, and if required, treated appropriately in accordance with PRC Section 21083.2 and CEQA Guidelines Section 15126.4. In addition, if human remains are identified no further excavation or disturbance occur until authorized. This mitigation measure would reduce this impact to a **less than significant** level. No further mitigation would be required.

Operation Impacts

Most maintenance activities would not result in ground disturbance. Occasional bank stabilization and sediment removal may be required in the restored channel; however, the channel would be restored with imported material brought in to raise the level of existing lake bottom to the match Alamitos Creek upstream. As the restored channel would be imported material, there would be no possibility of encountering cultural resources during maintenance, and there would be **no impact to cultural resources**.

Mitigation Measures

Mitigation Measure 3.F-1a: *Preconstruction Training and Cultural Resources Monitoring*. Prior to construction, a qualified archaeologist shall prepare a cultural resources monitoring plan. The District shall review and approve the plan. The plan shall include a requirement for monitoring of construction activities within 200 feet of archaeological site CA-SCL-132 by a qualified archaeologist and, if reasonably available, a Native American representative. The plan shall include (but not be limited to) the following components:

- A training program for all construction and field workers involved in site disturbance that would be completed prior to the commencement of construction activities and that would train site workers in the identification of cultural resources, and actions to be undertaken in the event that cultural resources are discovered;
- The identification of person(s) responsible for conducting monitoring activities, including Native American monitors;
- The identification of person(s) responsible for overseeing and directing the monitors;
- Monitoring protocols and procedures, including the ability of the monitor to stop work within 100 feet of the find, and the required format and content of monitoring reports;
- The schedule for submittal of monitoring reports and identification of person(s) responsible for review and approval of monitoring reports;
- A protocol for notifications in the event cultural resources are encountered, as well as methods of dealing with the encountered resources (e.g., collection, identification, curation);
- Methods to ensure the security of cultural resources sites; and
- A protocol for notifying local authorities (i.e. Sheriff, Police) should site looting and other illegal activities occur during construction.

During the course of the construction monitoring, the archaeologist may adjust the frequency, from continuous to intermittent, of the monitoring based on the conditions and professional judgment regarding the potential to impact resources.

Mitigation Measure 3.F-1b: *Accidental Discovery of Archaeological Artifacts, Tribal Cultural Resources, or Burial Remains*. If historical or unique archaeological artifacts (including potential tribal cultural resources) are accidentally discovered during construction, the District shall restrict work in affected areas until proper protocols are met. Work at the location of the find will halt immediately within 30 feet of the find. A "no work" zone shall be established utilizing appropriate flagging to delineate the boundary of this zone. A Consulting Archaeologist will visit the discovery site as soon as practicable for identification and evaluation pursuant to Section 21083.2 of the Public Resources Code and Section 15126.4 of the California Code of Regulations. If the archaeologist determines that the artifact is not significant, construction may resume. If the archaeologist determines that the artifact is significant, the archaeologist will determine if the artifact can be avoided and, if so, will detail avoidance procedures. If the artifact cannot be avoided, the archaeologist will develop within 48 hours an Action Plan which will include provisions to minimize impacts and, if required, a Data Recovery Plan for recovery of artifacts in accordance with Public Resources Code Section 21083.2 and Section 15126.4 of the CEQA Guidelines. Impacts to tribal cultural resources shall be assessed in consultation with culturally-affiliated Native American tribes.

If burial finds are accidentally discovered during construction, work in affected areas will be restricted or stopped until proper protocols are met. Upon discovering any burial site as evidenced by human skeletal remains, the County Coroner will be immediately notified and the field crew supervisor shall take immediate steps to secure and protect such remains from vandalism during periods when work crews are absent. No further excavation or disturbance within 30 feet of the site or any nearby area reasonably suspected to overlie adjacent remains may be made except as authorized by the County Coroner, California Native American Heritage Commission, and/or the County Coordinator of Indian Affairs.

Impact Significance after Mitigation: Less than Significant. Mitigation Measures 3.F-1a and 3.F-1b would require the preparation of a cultural resources monitoring plan to be implemented for all work within 200 feet of site CA-SCL-132 to minimize impacts to this resource and establish protocols and buffers should other unknown sites be discovered.

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3.G Energy

This section identifies and evaluates issues related to energy in the context of the Project. Discussed are the regional and local setting and the impacts associated with construction, operation, and maintenance of the Project.

3.G.1 Environmental Setting

Regional and Local Setting

California's energy system includes electricity, natural gas, and petroleum. According to the California Energy Commission (CEC), California's energy system generates 71 percent of the electricity, 10 percent of the natural gas, and 31 percent of the petroleum consumed or used in the state. The rest of the state's energy and energy sources are imported, and includes electricity from the Pacific Northwest and the Southwest; natural gas purchases from Canada, the Rocky Mountain States, and the southwest; and petroleum imported from Alaska and foreign sources (CEC, 2019a; 2019b; and 2019c). Construction and operation of the Project would require the use of electricity and transportation fuels, primarily in the form of gasoline and diesel. Therefore, those energy resources are discussed below in the context of the regional and local setting for the Project.

Electricity

The production of electricity requires the consumption or conversion of energy resources including natural gas, coal, water, nuclear, and renewable sources such as wind, solar, and geothermal. Of the electricity generated in California in 2017, 43.4 percent is generated by natural gas-fired power plants, 0.2 percent is generated by coal-fired power plants, 17.9 percent comes from large hydroelectric dams, and 8.7 percent comes from nuclear power plants. The remaining 29.7 percent in-state total electricity production is supplied by renewable sources including solar, biomass, geothermal, small hydro, and wind power (CEC, 2019a). Electricity is distributed via a network of high voltage transmission lines commonly referred to as the power grid.

Electricity consumption in Santa Clara County for 2017 was 17,190 gigawatt-hours (GWh) (CEC, 2019d). Pacific Gas and Electric Company (PG&E) is the local public utility and energy supplier in the Project area, and produces and purchases electricity from both renewable and nonrenewable resources. PG&E provides electric service to approximately 16 million people throughout a 70,000-square-mile service area in northern and central California that stretches from Eureka in the north to Bakersfield in the south, and from the Pacific Ocean in the west to the Sierra Nevada in the east (PG&E, 2019).

The District is a member of Power and Water Resources Pooling Authority (PWRPA), a joint powers authority (JPA) to collectively manage electrical loads and generation assets. PWRPA is subject to the State of California "Renewable Portfolio Standard" (RPS) mandate, whereby electric utilities must serve a RPS percentage of retail sales with renewable resources within a given Compliance Period. In addition to supporting the District's governance policy to achieve carbon neutrality, local renewable energy projects being pursued by the District will also contribute to PWRPA's requirement to meet the RPS mandate.

Gasoline

Gasoline is by far the largest transportation fuel by volume used in California. Nearly all of the gasoline used in California is obtained through the retail market. In 2017, approximately 15.6 billion gallons of gasoline were sold in California's retail market, and the total sales of gasoline in Santa Clara County in 2017 was 685 million gallons (CEC, 2018).

Diesel

Diesel fuel is the second largest transportation fuel by volume used in California behind gasoline. According to the U.S. Department of Energy's Energy Information Administration, nearly all semi-trucks, delivery vehicles, buses, trains, ships, boats and barges, farm, construction, and military vehicles and equipment have diesel engines. It is estimated that approximately 51 percent of total diesel sales in California are associated with retail sales. In 2017, 3.8 billion gallons of diesel were sold in California (CEC, 2019). In 2017, retail sales of diesel fuel in Santa Clara County were 36 million gallons (CEC, 2018).

3.G.2 Regulatory Setting

Federal Regulations

National Energy Conservation Policy Act

The National Energy Conservation Policy Act (NECPA) serves as the underlying authority for federal energy management goals and requirements. Signed into law in 1978, it has been regularly updated and amended by subsequent laws and regulations. This act is the foundation of most federal energy requirements. NECPA established energy-efficiency standards for consumer projects and includes a residential program for low-income weatherization assistance, grants, and loan guarantees for energy conservation in schools and hospitals, and energy-efficiency standards for new construction. Furthermore, the NEPCA established fuel economy standards for on-road motor vehicles in the United States. The National Highway Traffic and Safety Administration (NHTSA), which is part of the U.S. Department of Transportation (USDOT), is responsible for establishing additional vehicle standards and revising existing standards under the NEPCA. The USDOT is authorized to assess penalties for noncompliance. In the course of more than 30 years, this regulatory program has resulted in improved fuel economy throughout the United States' vehicle fleet (NHTSA, 2014; 2018).

National Energy Policy Act of 2005

The National Energy Policy Act of 2005 sets equipment energy efficiency standards and seeks to reduce reliance on non-renewable energy resources and provide incentives to reduce current demand on these resources. For example, under the Act, consumers and businesses can attain federal tax credits for purchasing fuel-efficient appliances and products, including hybrid vehicles; constructing energy-efficient buildings; and improving the energy efficiency of commercial buildings. Additionally, tax credits are available for the installation of qualified fuel cells, stationary microturbine power plants, and solar power equipment.

Executive Order 13423 (Strengthening Federal Environmental, Energy, and Transportation Management), signed in 2007, strengthens the key energy management goals for the federal government and sets more challenging goals than the Energy Policy Act of 2005. The energy reduction and environmental performance requirements of Executive Order 13423 were expanded upon in Executive Order 13514 (Federal Leadership in Environmental, Energy, and Economic Performance), signed in 2009.

Energy and Independence Security Act of 2007 and Corporate Average Fuel Economy Standards

The Energy and Independence Security Act of 2007 (42 USC §17001) sets federal energy management requirements in several areas, including energy reduction goals for federal buildings, facility management and benchmarking, performance and standards for new buildings and major renovations, high-performance buildings, energy savings performance contracts, metering, energy-efficient product procurement, and reduction in petroleum use, including by setting automobile efficiency standards, and increase in alternative fuel use. This act also amends portions of the National Energy Policy Conservation Act, described above.

State Regulations

California Energy Commission

The CEC was established by the Warren-Alquist Act in 1974 and is the State's primary energy policy and planning agency. The CEC has five major responsibilities: forecasting future energy needs and keeping historical energy data; licensing thermal power plants 50 megawatts or larger; promoting energy efficiency through appliance and building standards; developing energy technologies and supporting renewable energy; and planning for and directing state response to energy emergencies.

Administered by the CEC, the California Energy Action Plan (EAP) was adopted in 2003 and a second EAP was adopted by both the CEC and the California Public Utilities Commission (CPUC) in 2005. The EAP established shared goals and specific actions to ensure that adequate, reliable, and reasonably priced electrical power and natural gas supplies are achieved and provided through policies, strategies, and actions that are cost-effective and environmentally sound for California's consumers and taxpayers. Also, incorporated in the EAP are specific actions reflecting the importance of transportation fuels to California's economy and the need to mitigate the environmental impacts caused by their use, as well as the importance of taking actions in the near term to mitigate California's contributions to climate change from the electricity, natural gas, and transportation sectors. In 2008, the EAP was updated to expand on the State's actions in the context of global climate change and include the passage of Assembly Bill 32, the California Global Warming Solutions Act of 2006.

California Air Resources Board

Governor Ronald Reagan approved the Mulford-Carrell Air Resources Act to create the State Air Resources Board, committing California to a unified, statewide approach to address air pollution in the state. CARB was a merger of the Bureau of Air Sanitation and the California Motor Vehicle Pollution Control Board. That same year, the Federal Air Quality Act of 1967 was enacted, giving California the ability to set its own more stringent air quality rules due to California's unique geography, weather, and expanding number of people and vehicles.

California Advanced Clean Cars Program/Zero Emission Vehicle Program

In January 2012, CARB approved an emissions-control program for vehicle model years 2017 through 2025. The program combines the control of smog, soot, and greenhouse gas with requirements for greater numbers of zero-emission vehicles into a single package of standards called Advanced Clean Cars. The components of the Advanced Clean Cars Program include the Low-Emission Vehicle (LEV) regulations that reduce criteria pollutants and greenhouse gas emissions from light- and medium-duty vehicles, and the Zero-Emission Vehicle (ZEV) regulation, which requires manufacturers to produce an increasing number of pure ZEVs (meaning battery electric and fuel cell electric vehicles), with provisions to also produce plug-in hybrid electric vehicles (PHEV) in the 2018 through 2025 model years. In March 2017, CARB voted unanimously to continue with the vehicle greenhouse gas emission standards and the ZEV program for cars and light trucks sold in California past 2025 (CARB, 2017).

CARB Heavy Duty Regulations

CARB’s Truck and Bus Regulation also requires diesel trucks that operate in California to be upgraded to reduce emissions. Newer heavier trucks must meet PM filter requirements beginning in 2012. Lighter and older heavier trucks must be replaced starting in 2015. By 2023 nearly all trucks would have 2010 model year engines or equivalent (CARB, 2019).

In 2004, CARB adopted a fourth tier of increasingly stringent advanced after treatment for new off-road compression-ignition engines, including those found in construction equipment. These “Tier 4” standards were phased-in across product lines from 2008 through 2015 and reduced exhaust emission levels by up to 95 percent compared to previous control strategies. In 2007, CARB first approved the Off-Road Regulation that requires off-road fleets to reduce their emissions by retiring, replacing, or repowering older engines (CARB, 2016).

California Public Utilities Commission

The CPUC was established in 1911 as the Railroad Commission and was expanded in 1912 to regulate privately owned electric, natural gas, telecommunications, water, railroad, and marine transportation companies, including PG&E. The CPUC ensures that consumers receive safe and reliable utility services at reasonable rates, protects against fraud, and promotes the health of California’s economy.

California Independent System Operator

The California Independent System Operator was established in 1998 and is a non-profit organization that independently manages the flow of electricity in California. It provides open access to the grid, ensuring equal access and a competitive energy market. In addition, it facilitates over 28,000 market transactions each day to ensure that enough power is available to meet demands.

CALGreen Building Code

The 2016 California Green Building Standards Code, as specified in Title 24, Part 11 of the California Code of Regulations, specifies building standards to improve public health, safety, and general welfare by enhancing the design and construction of buildings through the use of building concepts having a positive environmental impact and encouraging sustainable construction practices. The provisions of this code apply to the planning, design, operation, construction, replacement, use and occupancy, location, maintenance, removal, and demolition of every building or structure or any appurtenances connected or attached to such building structures throughout California. Since the Project would include not include construction of building(s), the 2016 California Green Building Standards Code would not be applicable to the Project.

Renewable Portfolio Standard

Senate Bill 1078 (SB 1078) (Chapter 516, Statutes of 2002) requires retail sellers of electricity, including investor-owned utilities and community choice aggregators, to provide at least 20 percent of their supply from renewable sources by 2017. SB 107 (Chapter 464, Statutes of 2006) changed the target date to 2010. In November 2008, the Governor signed Executive Order S-14-08, which expanded the State’s Renewable (Energy) Portfolio Standard (RPS) to 33 percent renewable power by 2020. On September 15, 2009, the Governor issued Executive Order S-21-09 requiring the California Air Resources Board (CARB), under its AB 32 authority, to adopt regulations to meet a 33 percent RPS target by 2020. The CARB regulations use a phased-in or tiered requirement to increase the amount of electricity from eligible renewable sources over an 8-year period that began in 2012. CARB adopted the regulations in September 2010.

In March 2011, the Legislature passed SB X1-2, which was signed into law by the Governor the following Month. SB X1-2 requires utilities to procure renewable energy products equal to 33 percent of retail sales by December 31, 2020, and also established interim targets: 20 percent by December 31, 2013, and 25 percent by December 31, 2016. Senate Bill 350 (SB 350) of 2015 (Chapter 547, Statutes of 2015) increased the RPS to 50 percent by the year 2030. In 2018, SB 100 was signed into law, which again increased the RPS to 60 percent by 2030 and requires all state's electricity to come from carbon-free resources by 2045. SB 100 took effect on January 1, 2019.

Local Regulations

Envision San José 2040 General Plan

The following goal and policies of City of San José's *Envision San José 2040 General Plan* (General Plan) may be applicable to the Project (City of San José, 2018).

Goal MS-2 – Energy Conservation and Renewable Energy Use

Policy MS-2.3. Utilize solar orientation (i.e., building placement), landscaping, design, and construction techniques for new construction to minimize energy consumption.

Policy MS-2.4. Promote energy efficient construction industry practices.

Municipal Code

The City's Municipal Code includes regulations for energy efficiency and energy use. City regulations include a Green Building Ordinance (Chapter 17.84) to foster practices to minimize the use and waste of energy, water, and other resources in the City, Water Efficient Landscape Standards for New and Rehabilitated Landscaping (Chapter 15.10), and a Construction and Demolition Diversion Deposit Program that fosters recycling of construction and demolition materials (Chapter 9.10).

3.G.3 Impacts and Mitigation Measures

Significance Criteria

Implementation of the Project would have a significant impact on energy if it were to:

- Result in wasteful, inefficient, or unnecessary consumption of energy resources, during Project construction or operation;
- Conflict with or obstruct a state or local plan for renewable energy or energy efficiency.

Approach to Analysis

The following analysis discusses the impacts of the Project related to energy resource impacts in the Project area. This section includes an analysis of short-term (construction) and long-term (operation) impacts of the Project. Impact evaluations are assessed based on the existing conditions described earlier in this section. Mitigation measures are identified, as necessary, to reduce significant impacts. The analysis considers the Project, Appendix G of the State CEQA Guidelines, current conditions, and applicable regulations, plans, and policies.

This analysis is based, in part, on basic assumptions regarding construction-related diesel and gasoline consumption for the Project, and estimates of the operational energy requirements for the Project. The analysis focuses on the anticipated energy demand and energy efficiency of the Project as a whole, including during construction, operation, and maintenance of the proposed facilities.

Average off-road equipment inventories for calendar year 2021 and construction and operation activity assumptions identified in the air quality and GHG emission calculations (see Appendix B) were used by the District's consultant (Environmental Science Associates [ESA]) to estimate fuel amounts that would be consumed by off-road equipment during construction of the Project. Fuel consumption factors for off-road equipment were derived from equipment inventory data using the California Air Resources Board's off-road emissions inventory database. Fuel use that would be associated with commuting workers and truck hauling during construction and operation of the Project were also estimated using trip data projected for the Project and relevant vehicle fuel economy information (see **Appendix B** for all fuel consumption factors and assumptions).

No Impact Significance Determinations

Based on the nature of the Project, there would be **no impact** related to the following criterion:

> ***Conflict with or obstruct a state or local plan for renewable energy or energy efficiency***. The Project would not include the development or demolition of any buildings. Therefore, no impact related to compliance with applicable energy and energy efficiency/conservation standards or codes, such as the California Building Standards or California Energy Code, would result. In addition, given the nature of the Project, it would have no impact related to conflicting with or obstructing California's Renewable Portfolio Standard.

Impact Summary

Table 3.G-1 provides a summary of the energy impact by implementation phase (construction and operations).

TABLE 3.G-1
SUMMARY OF THE ENERGY RESOURCES IMPACT

Impact Statement	Construction	Operation
Impact 3.G-1: The Project would result in wasteful, inefficient, or unnecessary consumption of energy resources during Project construction or operation.	LSM	LS

LS = Less than significant
LSM = Less than significant with mitigation

Impacts and Mitigation Measures

Impact 3.G-1: The Project would result in wasteful, inefficient, or unnecessary consumption of energy resources during Project construction or operation. (Less than Significant with Mitigation)

Construction

Construction-related energy expenditures that would be associated with the Project would include both direct and indirect uses of energy, primarily in the form of diesel and gasoline fuel. Direct energy use would include the consumption of petroleum for operation of construction vehicles and equipment. Indirect energy use includes the energy required to make the materials and components used during construction. This includes energy used for extraction of raw materials, manufacturing, and transportation associated with manufacturing.

Although the precise amount of construction-related direct energy consumption that would occur under the Project is unknown, it is estimated that there would be a total of approximately 60,012 off-road equipment-operation hours that would consume a total of approximately 206,629 gallons of diesel fuel at an average rate of 3.3 gallons per hour. With regard to vehicle use during construction, commuting workers' vehicles would travel an average of approximately 12.4 miles per trip for a project total of over 307,917 miles and would consume a total of approximately 13,996 gallons of gasoline (assuming an average fuel economy of 22 miles per gallon) and heavy haul and vendor trucks would travel an average of approximately 18.5 miles and 7.3 miles per trip, respectively, for a project total of approximately 1,562,648 miles and would consume a total of approximately 260,441 gallons of diesel fuel (assuming an average fuel economy rate of 6.0 miles per gallon) (see Appendix B for all assumptions and fuel use factors). When averaged over the construction period, the annual fuel use for off-road construction equipment would be approximately 103,315 gallons of diesel fuel per year, construction workers' personal vehicles would consume approximately 6,998 gallons of gasoline per year, and heavy haul trucks would consume approximately 130,221 gallons of diesel fuel per year. The total average annual fuel use during the construction period would be approximately 6,998 gallons per year of gasoline and approximately 233,535 gallons per year of diesel fuel. These annual average use amounts are equivalent to less than 0.01 percent of the total gasoline fuel sold in Santa Clara County, and approximately 0.33 percent diesel fuel sold in Santa Clara County (see the *Regional and Local Setting* discussion above).

It should be noted that the gasoline and diesel vehicle fuel use estimates provided above assume that all Project-related vehicles would consume gasoline or diesel fuel. However, pursuant to the state's Advanced Clean Cars Program that includes regulations to increase production of battery electric and fuel cell electric vehicles through the 2018 through 2025 model years, the actual vehicle fuel use that would be associated with the construction of the Project may be less than described above, while there may also be a modest increase in indirect electricity use.

In addition to the equipment and vehicle fuel use described above, this analysis conservatively assumes that the District may ship up to 50,000 tons of contaminated lake bed sediment via railroad from Port of Oakland to an approved disposal site in Utah (although the District anticipates the actual need may be approximately half that amount). The associated amount of locomotive diesel fuel that would be consumed during the roundtrip to and from Utah has been estimated to be approximately 65,000 gallons, approximately 4,000 gallons of which would be consumed within the Bay Area (see Air Quality and GHG Emissions in Appendix B).

While the overall fuel use requirements would not be significant relative to the overall sales of fuels in the County, construction activities could result in wasteful or inefficient use of energy fuels. The potential for construction activities to use large amounts of fuel or energy in a wasteful or inefficient manner would be a **significant impact**. However, with implementation of **Mitigation Measure 3.C-1b (BAAQMD Basic Construction Mitigation Measures)**, which would require construction equipment to be well maintained and properly tuned, and would limit equipment and vehicle idling, construction activities would be conducted in a fuel-efficient manner, and the construction impact would be reduced to a **less than significant** level.

Operations

Future maintenance of the Project could include sediment removal and bank protection activities. Sediment removal is only anticipated to be needed once every ten years and would only last a few weeks in duration, while bank repair and levee settlement adjustment would only occur if necessary. The only other applicable operational activities that would require use of energy fuels over baseline conditions would be limited to occasional worker vehicle trips to the site to maintain the landscaping during the first three years of the Project's operation and inspection and maintenance of the new levee a few times a year. These infrequent vehicle trips and landscaping equipment operation would be intermittent and would require limited transportation fuels. In addition to fuel use, the pump station at the new levee would have two 135 horsepower (30 kilowatts) pumps that may be powered with electricity obtained from PG&E's electrical power grid, should a strictly renewable power source, such as through the PWRPA, not be available. However, pursuant to the state's Renewable Portfolio Standards, PG&E's power grid will continue to increase its reliance on renewable power sources and will be required to provide electricity that will be generated with at least 33 percent renewable power by 2020 and 60 percent renewable power by 2030. The District has designed the pump station, both in terms of the horsepower of the pumps and the locations for the pump station options, to ensure it would be operated in an efficient manner that would not result in the wasteful use of electricity. Assuming these pumps would operate continuously at full power (a conservative assumption), they would consume approximately 1,587,360 kilowatt-hours (kWh) per year. This amount of electrical power is negligible when compared to the amount of electricity consumed in Santa Clara on an annual basis (i.e., 17,190 GWh in 2017). In addition, solar powered circulators would be installed to manage and reduce future methylmercury production. The pumps and circulators would be operated in an energy efficient manner, and the operational impact would be **less than significant**.

Mitigation Measures

Implement Mitigation Measure 3.C-1b (see Section 3.C, Air Quality, Impact 3.C-2).

Impact Significance after Mitigation: Less than Significant.

3.G.4 References

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3.H Geology and Soils

This section describes the environmental and regulatory setting of the Project area, including all areas of potential disturbance, with respect to geology, soils, seismicity, and paleontological resources in the vicinity of the Project site, including geologic and seismic hazards. The analysis considers impacts resulting from the construction, operation, and maintenance of the Project. Impacts relating to sediment and erosion are considered in Section 3.K, Hydrology and Water Quality.

3.H.1 Environmental Setting

The discussion of regional and Project site geology, soils, seismicity, and paleontological resources is based on the geotechnical and geological investigation report undertaken by Cal Engineering & Geology (CE&G) (2015) (Appendix D), unless otherwise cited.

Topography

The Project site lies within the Coast Ranges of California, which are northwest-southeast trending mountain ranges and intervening valleys. The site is located on the northeastern margin of the Almaden Valley, a valley immediately downstream and northwest of Calero Reservoir. Alamitos Creek flows northwest through the site. The site is located at an elevation of about 195 feet above sea level.

Geology

Regionally, Almaden Lake is located on the eastern margin of a relatively flat alluvial valley. The Project site is underlain by Quaternary age surficial sediments consisting of sand and gravel of major stream channels and bounded by Quaternary age alluvium consisting of gravel sand and clay of valleys.

Land

The land-based areas of the Project site are relatively uniform, with approximately 9 to 19 feet of artificial fill, consisting of variable thicknesses of silt combined with varying amounts of sand, gravel, clay, asphalt, and concrete debris. The density of granular artificial fill varies from medium dense to very dense; fine grained artificial fill varies in consistency from stiff to hard. Alluvial deposits underlain the artificial fill, consisting primarily of granular soils comprised of various grades of gravel, sand, silty sand, sandy clay, and lean clay. Granular alluvial deposits vary in density from medium dense to very dense. Fine grained alluvial deposits vary in consistency from stiff to very stiff.

The groundwater level in the Project area is between 9 and 18.5 feet below ground surface, but fluctuates seasonally according to rainfall, water recharge programs, well pumping, or other factors.

Over-Water

The over-water areas of the Project site are relatively uniform. The lake bottom is underlain by between 4 and 11 feet of lake sediments, consisting of variable thickness of silts with low plasticity with variable amounts of fine sand, peat, and fat clay, all with very soft or loose consistency. The silts behave like loose, cohesionless material. Lake sediments are underlain by alluvial deposits consisting of a mixture of well-graded gravel, sand, silt, and elastic silt. The density of granular alluvial deposits varies from medium dense to very dense; fine grained alluvial deposits density varies from stiff to very stiff. The boundary between the very soft lake sediments and the underlying alluvial deposits is characterized by a distinct increase in relative density.

Seismicity and Geologic Hazards

Seismicity

The Project area can be expected to experience periodic minor earthquakes and possibly a major earthquake on one of the nearby active faults during the lifespan of the components. The Project site is located within the greater San Francisco Bay Area which is recognized as one of the more seismically active regions of California. The San Andreas fault system marks the major boundary between two of earth's tectonic plates, the Pacific Plate on the west and the North American Plate on the east. The right-lateral strike-slip[1] San Andreas fault system controls the northwest-southeast structural grain of the Coast Ranges and the Bay Area. The other major faults in the region are the Sargent, Hayward, Greenville, San Gregorio and Calaveras faults. These faults, their distances from the Project site, and their moment magnitude[2] (Mw) are presented in **Table 3.H-1**.

Fault Rupture

Seismically induced ground rupture is defined as the physical displacement of surface deposits in response to an earthquake's seismic waves. Ground rupture is considered more likely along active faults, which are discussed above. The Project site is not located within or immediately adjacent to an Earthquake Fault Zone for active faults as designated by the State Geologist. The nearest fault to the Project site, the Monte Vista-Shannon fault system, has been mapped approximately 1.7 miles from the site, but this fault is inactive.

1 Refers to relative motion on either side of a fault that is primarily horizontal (as opposed to vertical). If straddling the fault, the right side of a right-lateral fault would move towards the observer.

2 Moment Magnitude (Mw) is related to the physical size of a fault rupture and movement across a fault. Moment magnitude provides a physically meaningful measure of the size of a faulting event (CGS, 2002b). The Maximum Moment Magnitude Earthquake is derived from the joint CGS/USGS Probabilistic Seismic Hazard Assessment for the State of California, 1996 (Peterson et al., 1996).

**TABLE 3.H-1
DISTANCES TO MAJOR ACTIVE FAULTS**

Active Fault[a] Segment	Approx. Distance from Fault (Miles)	Direction from Site	Moment Magnitude of Maximum Earthquake
Sargent	8.3	southwest	6.7
San Andreas	8.2	southwest	7.9
Hayward Southern extension	7.5	east-northeast	7.1
Calaveras south	10.6	northeast	6.8
Hayward south	14.3	north	7.1
Greenville	23.6	northeast	6.9
San Gregorio	24.9	southwest	7.3

NOTES:

[a] An “active” fault is defined by the State of California as a fault that has had surface displacement within approximately the last 11,000 years. A “potentially active” fault is defined as a fault that has shown evidence of surface displacement during the last 1.6 million years, unless direct geologic evidence demonstrates inactivity for the last 11,000 years or longer. This definition does not mean that faults lacking evidence of surface displacement are necessarily inactive. “Sufficiently active” is also used to describe a fault if there is some evidence that displacement occurred in the last 11,000 years on one or more of its segments or branches. (Bryant and Hart, 2007).

SOURCES: Bryant and Hart, 2007; Jennings and Bryant, 2010; Peterson et al., 1996.

Groundshaking

A large magnitude earthquake on any of the above-mentioned fault systems has the potential to cause significant ground shaking at the site. The intensity of groundshaking that is likely to occur at the site is generally dependent upon the magnitude of the earthquake and the distance to the epicenter. Estimates by the Working Group on California Earthquake Probabilities (WGCEP) indicated a 72 percent chance that a magnitude 6.7 or greater earthquake would occur in the Bay Area region over the next 30 years (USGS, 2016). The geotechnical investigation estimated that the Project area has a 39.3 percent of experiencing a MW 6.67 or higher earthquake occurring over the next 50 years (CE&G, 2015). Using tools contained on the U.S. Geological Survey (USGS) website, the geotechnical consultant completed a probabilistic assessment of the earthquake shaking hazard at the site. According to the findings based on the USGS website using Site Class C soils to describe the conditions at the site, the anticipated peak ground acceleration is 0.24g.

Liquefaction

Liquefaction occurs when soil located below the groundwater surface loses a substantial amount of strength due to high excess pore-water pressure generated and accumulated during strong earthquake ground shaking. Recently deposited and relatively loose natural soils, and uncompacted or poorly compacted artificial fills located below the groundwater table are potentially susceptible to liquefaction.

Saturated granular materials that are potentially susceptible to liquefaction are pervasive within the loose lake sediments and sporadic within the dense alluvial soils below lake sediments of Almaden Lake. The Seismic Hazard Zone map prepared by the California

Geological Survey (CGS) for the USGS Santa Theresa Hills and Los Gatos quadrangles indicates that the entire Almaden Lake site and areas adjacent to Alamitos Creek are located within a liquefaction hazard zone. Geotechnical borings results indicate that the lake sediment deposits and some deeper sandy soil layers would likely liquefy during an earthquake event with a 100-year return period. About 75 percent of the liquefaction induced settlement is estimated to occur in the lake sediment deposits.

Lateral Spreading

Lateral spreading occurs as surficial soil displaces along a shear zone that has formed within an underlying continuous liquefied layer. The surficial blocks are transported downslope or in the direction of a free face, such as a channel, by earthquake and gravitational forces. Because the geotechnical investigation encountered materials in the loose lake sediments and alluvial soils below lake sediments that are potentially susceptible to liquefaction, and since the CGS Seismic Hazard Zone map indicates that the entire Project area is located within a liquefaction hazard zone, lateral spreading may have the potential to occur on the Project site.

Cyclic Densification

Cyclic densification can occur in non-saturated sand (sand above the groundwater table) caused by earthquake vibrations, resulting in settlement of the ground surface. The geotechnical investigation encountered varying amounts of sand mixed with gravel, silt, and/or clay in the artificial fill and the alluvial deposits underneath the artificial fill. Borings encountered two loose silty and sand layers and a loose poorly graded sand layer, indicating some potential for densification.

Landsliding

Slope stability calculations and analyses show that the current slopes of the existing island are not stable, and as a result have the potential to be susceptible to landsliding during a seismic event. In addition, although the Project area is outside of the earthquake-induced landslide zone, the northeast corner of the Project area abuts an area delineated by the CGS as being an area where previous occurrence of landslide movement, or local topographic, geological, geotechnical and subsurface water conditions indicate a potential for permanent ground displacement such that modifications as defined in Public Resources Code Sec. 2693(c) would be required (CDC, 2003).

Expansive Soils

Expansive soils are characterized by their potential “shrink-swell” behavior. Shrink-swell is the cyclic change in volume (expansion and contraction) that occurs in certain fine-grained clay sediments from the process of wetting and drying. The higher the percentage of expansive minerals present in near surface soils, the higher the potential for significant expansion. The greatest effects occur when there are significant or repeated moisture content changes. Expansions of 10 percent or more in volume are not uncommon. This change in volume can exert enough force on a building or other structure to cause cracked foundations, floors, and basement walls over time.

Several soil types identified in the Project vicinity have a range of expansive qualities. Soils along the northern, eastern, and western boundaries of the Almaden Lake shoreline, and at the southern end of the Project site where the Alamitos Creek enters Almaden Lake have a low shrink-swell potential. Soils found in the northeast and southeastern portions of the Project site have a moderate to high shrink-swell potential. Soils located in the northwestern corner of the Project area have a moderate shrink-swell potential. Soils found in the southwestern corner of the Project area have a low to high shrink-swell potential.

Corrosive Soils

Corrosive soils can damage underground utilities including pipelines and cables, can weaken roadway structures, and can degrade uncoated steel. Based on a review of information available through the US Department of Agriculture's Natural Resources Conservation Service, a review specific to the Project site did not identify any soils on site that show potential to corrode steel or concrete (NRCS, 2017). Therefore, corrosive soils are not anticipated on site.

Paleontological Setting

Paleontological resources are the fossilized remains of plants and animals, including vertebrates (animals with backbones), invertebrates (e.g., starfish, clams, ammonites, and marine coral), and fossils of microscopic plants and animals (microfossils). The age and abundance of fossils depend on the location, topographic setting, and particular geologic formation in which they are found. Fossil discoveries not only provide a historical record of past plant and animal life but can assist geologists in dating rock formations. Fossil discoveries can expand our understanding of the time periods and the geographic range of existing and extinct flora and fauna.

The Society of Vertebrate Paleontology (SVP) established guidelines for the identification, assessment, and mitigation of adverse impacts on nonrenewable paleontological resources (SVP, 2010). Most practicing paleontologists in the United States adhere closely to the SVP's assessment, mitigation, and monitoring requirements as outlined in these guidelines, which were approved through a consensus of professional paleontologists. Many federal, state, county, and city agencies have either formally or informally adopted the SVP's standard guidelines for the mitigation of adverse construction-related impacts on paleontological resources. The SVP has helped define the value of paleontological resources and, in particular, indicates that geologic units of *high* paleontological potential are those from which vertebrate or significant invertebrate or plant fossils have been recovered in the past (i.e., are represented in institutional collections). Only invertebrate fossils that provide new information on existing flora or fauna or on the age of a rock unit would be significant. Geologic units of *low* paleontological potential are those that are not known to have produced a substantial body of significant paleontological material. As such, the sensitivity of an area with respect to paleontological resources hinges on its geologic setting and whether significant fossils have been discovered in the area or in similar geologic units.

The SVP further states the following:

- Vertebrate fossils and fossiliferous deposits are significant nonrenewable paleontological resources, and are afforded protection by federal, state, and local environmental laws and guidelines.
- A paleontological resource is considered to be older than recorded history or 5,000 years before present and should not be confused with archaeological resource sites.
- Invertebrate fossils are not significant paleontological resources, unless they are present with an assemblage of vertebrate fossils or they provide undiscovered information on the origin and character of the plant species, past climatic conditions or the age of the rock unit itself.
- Certain plant or invertebrate fossils may be designated as significant by a project paleontologist, special interest group, lead agency or local government.

With these principles, the SVP has outlined criteria for screening the paleontological potential of rock units and established assessment and mitigation procedures tailored to such potential (SVP, 1996; SVP, 2010). **Table 3.H-2** lists the criteria for high-potential, undetermined, and low-potential rock units.

TABLE 3.H-2
PALEONTOLOGICAL POTENTIAL CRITERIA

Paleontological Potential	Description
High	Geologic units from which vertebrate or significant invertebrate or plant fossils have been recovered in the past, or rock formations that would be lithologically and temporally suitable for the preservation of fossils. Only invertebrate fossils that provide new information on existing flora or fauna or on the age of a rock unit would be significant.
Undetermined	Geologic units for which little to no information is available.
Low	Geologic units that are not known to have produced a substantial body of significant paleontological material, as demonstrated by paleontological literature and prior field surveys, and which are poorly represented in institutional collections.

SOURCE: SVP, 2010.

It is important to note that while paleontological potential as defined above can provide a rough idea of whether subsurface fossils may exist, it prescribes a very low threshold for identifying a rock unit as high potential. It would include most sedimentary rock units older than recent, and any other rock types (i.e., igneous or metamorphic) that have yielded a vertebrate or significant invertebrate or plant fossils anywhere within their geographic extents. This low threshold is reasonable; however, being buried resources, the uniqueness or significance of a fossil locality is unknown until it is identified to a reasonably precise level (Scott and Springer, 2004; 5). As such, any fossil discovery should be treated as potentially unique or significant until determined otherwise by a professional paleontologist.

Paleontological Resource Potential

The fossil-yielding potential of a particular area is highly dependent on the geologic age and origin of the underlying rocks. The Project area is directly underlain by a variable thickness of artificial fill or disturbed soil which is typical of an urbanized area, as well as the lake which was a former quarry. Approximately 9 to 19 feet of artificial fill was encountered during the geotechnical investigation (Cal Engineering & Geology, 2015), consisting of variable thicknesses of silt with varying amounts of sand and gravel, lean clay with varying amounts of gravel and sand, well graded sand with gravel and clay, well graded sand with gravel, well graded gravel with sand, silty gravel with sand, asphalt and concrete debris. The natural geology consists of Holocene (less than 10 thousand years ago) alluvial deposits. Such deposits are composed mostly of poorly to moderately consolidated and poorly sorted silty-clay and sand. These alluvial fan deposits likely underlie the disturbed soils at highly variable depths beneath the Project area.

Artificial fills underlying the Project area have little to no potential to yield paleontological resources because they are engineered mixtures of sand, silt, and gravel that have been excavated, reworked, and/or transported to their present location. If artificial fills contain fossilized remains, they would be severely damaged, fragmented, unidentifiable, and could not be placed within the fossil record. Artificial fills and disturbed soils do not represent in situ or native geological deposits, and would thus be unable to yield fossils that could contribute to science or natural history. Underlying artificial fills are natural deposits of Holocene alluvium. Holocene alluvial fan deposits are loose, moderately to well-sorted sandy or clayey silt that form natural levee deposits bordering stream, or over-bank floodplain deposits. Such deposits are geologically immature and are unlikely to have fossilized the remains of organisms (fossilization processes take place over millions of years).

3.H.2 Regulatory Setting

Federal Regulations

There are no federal regulations regarding geology and soils that are relevant to the Project.

State Regulations

Alquist-Priolo Earthquake Fault Zoning Map

The Alquist-Priolo Earthquake Fault Zoning Act was passed in 1972 to protect structures for human occupancy from the hazard of surface faulting. In accordance with the Act, the State Geologist has established regulatory zones—called earthquake fault zones—around the surface traces of active faults, and has published maps showing these zones. Buildings for human occupancy cannot be constructed across surface traces of faults that are determined to be active. Because many active faults are complex and consist of more than one branch that may experience ground surface rupture, earthquake fault zones extend approximately 200 to 500 feet on either side of the mapped fault trace. Although a number of faults in the greater vicinity of the Project area are known to be active, no known active faults pass beneath the Project site, and no element of the Project would be located on a fault that has been formally mapped by the state as being within an Alquist-Priolo Earthquake Fault Zone.

Seismic Hazards Mapping Act

The Seismic Hazards Mapping Act was passed in 1990 following the Loma Prieta earthquake to reduce threats to public health and safety and to minimize property damage caused by earthquakes. This act requires the State Geologist to delineate various seismic hazard zones, and cities, counties, and other local permitting agencies to regulate certain development projects within these zones.

California Building Code

The California Building Code (CBC), which is codified in Title 24 of the California Code of Regulations, Part 2, was promulgated to safeguard the public health, safety, and general welfare by establishing minimum standards related to structural strength, means of egress to facilities (entering and exiting), and general stability of buildings. The purpose of the CBC is to regulate and control the design, construction, quality of materials, use/occupancy, location, and maintenance of all buildings and structures within its jurisdiction. Title 24 is administered by the California Building Standards Commission, which, by law, is responsible for coordinating all building standards. Under State law, all building standards must be centralized in Title 24 or they are not enforceable. The provisions of the CBC apply to the construction, alteration, movement, replacement, location, and demolition of every building or structure or any appurtenances connected or attached to such buildings or structures throughout California.

The 2016 edition of the CBC is based on the 2015 International Building Code (IBC) published by the International Code Council. The code is updated triennially, and the 2016 edition of the CBC was published by the California Building Standards Commission on July 1, 2016, and takes effect starting January 1, 2017. The 2016 CBC contains California amendments based on the American Society of Civil Engineers (ASCE) Minimum Design Standard ASCE/SEI 7-10, Minimum Design Loads for Buildings and Other Structures, provides requirements for general structural design and includes means for determining earthquake loads as well as other loads (such as wind loads) for inclusion into building codes. Seismic design provisions of the building code generally prescribe minimum lateral forces applied statically to the structure, combined with the gravity forces of the dead and live loads of the structure, which the structure then must be designed to withstand. The prescribed lateral forces are generally smaller than the actual peak forces that would be associated with a major earthquake. Consequently, structures should be able to: (1) resist minor earthquakes without damage, (2) resist moderate earthquakes without structural damage but with some nonstructural damage, and (3) resist major earthquakes without collapse, but with some structural as well as nonstructural damage. Conformance to the current building code recommendations does not constitute any kind of guarantee that significant structural damage would not occur in the event of a maximum magnitude earthquake. However, it is reasonable to expect that a structure designed in-accordance with the seismic requirements of the CBC should not collapse in a major earthquake.

The earthquake design requirements take into account the occupancy category of the structure, site class, soil classifications, and various seismic coefficients, all of which are used to determine a seismic design category (SDC) for a project. The SDC is a classification system that combines the occupancy categories with the level of expected ground motions at the site; SDC ranges from A (very small seismic vulnerability) to E/F (very high seismic vulnerability and near a major fault). Seismic design specifications are determined according to the SDC in accordance with Chapter 16 of the CBC. Chapter 18 of the CBC covers the requirements of geotechnical investigations (Section 1803), excavation, grading, and fills (Section 1804), load-bearing of soils (1806), as well as foundations (Section 1808), shallow foundations (Section 1809), and deep foundations (Section 1810). For Seismic Design Categories D, E, and F, Chapter 18 requires analysis of slope instability, liquefaction, and surface rupture attributable to faulting or lateral spreading, plus an evaluation of lateral pressures on basement and retaining walls, liquefaction and soil strength loss, and lateral movement or reduction in foundation soil-bearing capacity. It also addresses measures to be considered in structural design, which may include ground stabilization, selecting appropriate foundation type and depths, selecting appropriate structural systems to accommodate anticipated displacements, or any combination of these measures. The potential for liquefaction and soil strength loss must be evaluated for site-specific peak ground acceleration magnitudes and source characteristics consistent with the design earthquake ground motions.

NPDES Construction General Permit

For stormwater discharges associated with construction activity within California, the SWRCB has adopted the General Permit for Stormwater Discharges Associated with Construction and Land Disturbance Activities, Order No. 2009-0009-DWQ (Construction General Stormwater Permit; CGP) to avoid and minimize water quality impacts attributable to such activities. The permit applies to all projects where construction activity disturbs one or more acres of soil. Construction activities subject to this permit includes clearing, grading, and disturbances to the ground, such as stockpiling or excavation. The Construction General Stormwater Permit requires the development and implementation of a stormwater pollution prevention plan (SWPPP); the plan must specify best management practices (BMPs) designed to prevent pollutants from contacting stormwater and to keep all products of erosion from migrating offsite into receiving waters. Examples of typical construction BMPs include scheduling or limiting activities to certain times of year, installing sediment barriers such as silt fence and fiber rolls, maintaining equipment and vehicles used for construction, tracking controls such as stabilizing entrances to the construction site, and developing and implementing a spill prevention and cleanup plan. Non-stormwater management measures include installing specific discharge controls during certain activities, such as paving operations, and vehicle and equipment washing and fueling. The SWPPP must be prepared before the construction begins. The CGP is discussed in more detail in Section 3.K, Hydrology and Water Quality.

Local Regulations

City of San José General Plan

EC-3.2. Within seismic hazard zones identified under the Alquist-Priolo Fault Zoning Act, California Seismic Hazards Mapping Act and/or by the City of San José, complete geotechnical and geological investigations and approve development proposals only when the severity of seismic hazards have been evaluated and appropriate mitigation measures are provided as reviewed and approved by the City of San José Geologist. State guidelines for evaluating and mitigating seismic hazards and the City-adopted California Building Code will be followed.

EC-3.10. Require that a Certificate of Geologic Hazard Clearance be issued by the Director of Public Works prior to issuance of grading and building permits within defined geologic hazard zones related to seismic hazards.

EC-4.2. Approve development in areas subject to soils and geologic hazards, including unengineered fill and weak soils and landslide-prone areas, only when the severity of hazards have been evaluated and if shown to be required, appropriate mitigation measures are provided. New development proposed within areas of geologic hazards shall not be endangered by, nor contribute to, the hazardous conditions on the site or on adjoining properties. The City of San José Geologist will review and approve geotechnical and geological investigation reports for projects within these areas as part of the project approval process.

EC-4.4. Require all new development to conform to the City of San José's Geologic Hazard Ordinance.

EC-4.5. Ensure that any development activity that requires grading does not impact adjacent properties, local creeks and storm drainage systems by designing and building the site to drain properly and minimize erosion. An Erosion Control Plan is required for all private development projects that have a soil disturbance of one acre or more, are adjacent to a creek/river, and/or are located in hillside areas. Erosion Control Plans are also required for any grading occurring between October 15 and April 15.

EC-4.7. Consistent with the San José Geologic Hazard Ordinance, prepare geotechnical and geological investigation reports for projects in areas of known concern to address the implications of irrigated landscaping to slope stability and to determine if hazards can be adequately mitigated.

EC-4.10. Require a Certificate of Geologic Hazard Clearance to be issued by the Director of Public Works prior to issuance of grading and building permits within defined geologic hazard zones.

EC-4.11. Require the preparation of geotechnical and geological investigation reports for projects within areas subject to soils and geologic hazards, and require review and implementation of mitigation measures as part of the project approval process.

EC-4.12. Require review and approval of grading plans and erosion control plans (if applicable) prior to issuance of a grading permit by the Director of Public Works.

3.H.3 Impacts and Mitigation Measures

Significance Criteria

Implementation of the Project would have a significant impact on soils and geology if it were to:

- 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.
  ii) Strong seismic ground shaking.
  iii) Seismic-related ground failure, including liquefaction.
  iv) Landslides.
- Result in substantial soil erosion or the loss of topsoil.
- Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on-or off-site landslide, lateral spreading, subsidence, liquefaction or collapse.
- 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.[3]
- Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water.
- Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature.

Approach to Analysis

No Impact Significance Determinations

Based on the nature of the Project, there would be no impact related to the following criteria:

Expose people or structures to substantial adverse effects due to fault rupture. There are no active faults or other faulting zones defined in Alquist-Priolo maps, or based on other geologic data sources reviewed previously, that intersect the Project site. Therefore, the potential for fault rupture to occur within or even near the Project site is very low and there would be no impact.

Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water. No septic systems (which treat wastewater through ground

[3] The CBC, based on the International Building Code and the now defunct Uniform Building Code, no longer includes a Table 18-1-B. Instead, Section 1803.5.3 of the CBC describes the criteria for analyzing expansive soils.

percolation) or alternative wastewater disposal systems are proposed for this Project. The Project would separate the Alamitos Creek from Almaden Lake, with the goals of improving anadromous fish access to spawning and rearing habitat within the Guadalupe Watershed, and reducing methylmercury levels in the lake. Therefore, the criterion related to soils supporting the use of septic tanks or alternative wastewater disposal systems is not applicable to the Project and is not discussed further.

Impact Summary

Table 3.H-3 provides a summary of geology and soils related impacts by implementation phase (construction and operations).

TABLE 3.H-3
SUMMARY OF GEOLOGY AND SOILS IMPACTS

Impact Statement	Construction	Operation
Impact 3.H-1: The Project would not directly or indirectly cause potential substantial adverse effects involving strong seismic ground shaking.	LS	LS
Impact 3.H-2: The Project would not result in substantial soil erosion or loss of the topsoil.	LS	LS
Impact 3.H-3: The Project is located on a geologic unit or soil that could become unstable, but would not cause landsliding, lateral spreading, subsidence, liquefaction, or collapse.	LS	LS
Impact 3.H-4: The Project would not expose people or structures to substantial direct or indirect risks to life or property related to expansive or corrosive soils, as defined by the Uniform Building Code.	LS	LS
Impact 3.H-5: The Project would not directly or indirectly destroy a unique paleontological resource or site or unique geological feature.	LS	NI

NI = No impact
LS = Less than significant

Impacts and Mitigation Measures

Impact 3.H-1: The Project would not directly or indirectly cause potential substantial adverse effects involving strong seismic ground shaking. (Less than Significant)

Construction and Operation Impacts

As discussed in the Environmental Setting, the Project site is located in a seismically active region that contains a number of active faults. If not designed appropriately, an earthquake on one of these regional active faults could produce significant groundshaking at the Project site, causing damage to structures, including earthen structures, hardscape structures, and facilities.

Earthquakes are unavoidable hazards, and the resultant damage can be minimized through appropriate seismic design and engineering practices. The District would design the Project in compliance with all requirements of the CBC. Therein, the Project would be required to meet the latest standards of the CBC for construction, which considers proximity to potential seismic sources and the maximum anticipated groundshaking possible. The construction under the Project would be required to be in accordance with the most recent version of the CBC, which requires structural design that can accommodate ground accelerations expected from known active faults according to site-specific seismic design criteria.

The final design level geotechnical report for the Project would be reviewed and approved by the District for Geological Hazard Review. This review would ensure that seismic design requirements would be incorporated into construction specifications. Compliance with the building safety design standards of the CBC would reduce impacts associated with ground shaking to a **less than significant** level.

Mitigation Measures

None required.

Impact 3.H-2: The Project would not result in substantial soil erosion or loss of topsoil. (Less than Significant)

Construction Impacts

Construction activities associated with grading, stockpiling of soils, trenching, heavy machinery use, and other activities proposed under the Project, would involve earthwork activities. These activities would result in disturbance of existing soil layers. Additionally, draining of the lake and construction within the lake bottom would cause disturbance to lake bottom sediments. As discussed in Section 3.K, Hydrology and Water Quality, Project construction activities would be required to adhere to the conditions of the California Statewide General Construction Permit (General Permit). Adherence to this permit would require implementation of construction BMPs, as detailed in a SWPPP, as required by the General Permit, under the National Pollutant Discharge Elimination System (NPDES) program. These measures will be implemented, in accordance with state requirements, to minimize soil and sediment erosion on site, thereby minimizing soil erosion or loss of topsoil. Thus, with adherence to the required BMPs, construction related erosion would be minimized. Following completion of construction activities, remaining exposed areas that had been disturbed would be revegetated, which would limit potential for erosion on site. Therefore, with adherence to conditions of the General Permit, Project construction would not result in significant soil erosion impacts. This impact is considered **less than significant**. For additional discussion of soil erosion and sedimentation, please refer to Section 3.K, Hydrology and Water Quality.

Operations Impacts

Project operation would include conveyance of water along the restored Alamitos Creek channel, as well as management of stormwater on the remainder of the Project site. As noted above, all disturbed areas remaining barren following completion of earthwork on site would be immediately revegetated, prior to the initiation of operation. As discussed in Chapter 2, Project Description, native riparian vegetation would be planted along both sides of the levee, along the restored Alamitos Creek, and along the banks of the new/expanded islands. The lower west bank bench area of Alamitos Creek adjacent to the new expanded park area would be planted with wetland vegetation, while park areas would have ground cover, such as gravel, mulch, trees, lawn, etc. Other areas would be revegetated with native or ornamental landscaping species, with no areas left barren. Comprehensive revegetation of the Project site would maintain the topsoil and reduce soil erosion. This impact is considered **less than significant**.

Operation of the restored Alamitos Creek channel would involve the conveyance of water along the new channel. Erosion related impacts associated with the conveyance of water along the channel are discussed in Section 3.K, Hydrology and Water Quality, and are not further considered here.

Mitigation Measures

None required.

Impact 3.H-3: The Project is located on a geologic unit or soil that could become unstable, but would not cause landsliding, lateral spreading, subsidence, liquefaction, or collapse (Less than Significant)

Construction and Operations Impacts

As discussed in the setting section above, the Project site is likely to include shallow groundwater, at levels ranging from 9 to 18 feet below ground surface (subject to seasonal fluctuation). Groundwater levels immediately adjacent to the existing lake may be higher. Saturated loose, unconsolidated soils in areas of shallow groundwater underlying the Project site could potentially be susceptible to liquefaction. Additionally, a liquefaction analysis was completed as an element of the site specific geotechnical investigation (see Appendix D). Results from that analysis indicate that the lake bottom sediments and some deeper sandy soil layers would likely liquefy during an earthquake having a 100-year return frequency. Liquefaction induced settlement of about 2 to 6 inches was estimated within the scope of the geotechnical investigation, with numbers toward the higher end of this range settlement likely in lake bottom sediments. Other areas outside of the levee embankment construction area also include subsurface sediments that are susceptible to liquefaction and, potentially, lateral spreading.

The site specific geotechnical investigation provided recommendations to address geotechnical measures to minimize the potential for liquefaction, which have been incorporated into the Project. These recommendations include removal of lake sediments within the foundation footprint of the levee and, and the placement of engineered fill. The geotechnical investigation also determined that slope gradients at 2 to 1 would be stable, including for water-saturated locations. The design recommendations conform to this gradient, and furthermore are in general conformance with the U.S. Army Corps of Engineers

(USACE) engineering manual regarding the design and construction of levees (EM1110-2-1913). In addition, for other improvements, Chapter 16 of the CBC requires a final design level geotechnical report to be prepared for the Project prior to commencement of earthwork activities and engineering review and approvals to provide design level recommendations for the overall Project to reduce potential liquefaction hazards to less than significant levels. Liquefaction and lateral spreading hazards are generally addressed through foundation design, treatment of site soils, and/or replacement of liquefiable soils with engineered fills. The recommendations are then incorporated into building design plans in accordance with CBC requirements. Adherence to USACE levee construction standards and applicable building code requirements using geotechnical design measures outlined in the final design level geotechnical report and approved by the District, would minimize the potential for effects related to liquefaction and lateral spreading. Implementation of these building code requirements and geotechnical measures would ensure that seismically-induced ground failure including liquefaction and lateral spreading would be a **less than significant** impact to proposed development.

Mitigation Measures

None required.

Impact 3.H-4: The Project would not expose people or structures to substantial direct or indirect risks to life or property related to expansive soils, as defined by the Uniform Building Code. (Less than Significant)

Construction and Operation Impacts

The Project site covers a large area with a range of underlying soil profiles but generally characterized by artificial fill, lake sediments, and alluvial deposits. According to the preliminary geotechnical investigation conducted for the Project, collected soil samples at the site were found to have plasticity index values ranging from 3 to 36 percent (CE&G, 2015). Soils with plasticity index values that exceed 25 percent are considered to have a high potential for expansion, while below 10 percent is considered to be very low.

In accordance with building code requirements and USACE guidelines for levee construction, site-specific design criteria would include minimum standards for any imported fill materials. The preliminary geotechnical recommendations for the Project include plasticity index limits of between 10 and 20 percent for the levee fill materials and not less than 8 percent for the clay cap over the mercury-laden sediments in the lake (CE&G, 2015). The CBC includes provisions for construction on expansive soils which can generally be addressed through replacement with engineered fill or treatment onsite. Proper fill selection, moisture control, and compaction during construction can prevent expansive soils from causing significant damage. As a result, the Project would not expose people or structures to substantial direct or indirect risks to life or property related to expansive soils. Continued compliance with the CBC, the preliminary geotechnical investigation recommendations, and USACE guidelines for levee construction would ensure that this impact would be **less than significant**.

Mitigation Measures

None required.

Impact 3.H-5: The Project could directly or indirectly destroy a unique paleontological resource or site or unique geological feature. (Less than Significant)

The paleontological analysis identifies the potential to encounter paleontological resources (i.e., plant, animal or invertebrate fossils or microfossils) during excavations associated with the Project. The paleontological potential of the units to be disturbed was determined, and the potential to encounter paleontological resources at each site was evaluated. A significant impact on paleontological resources would occur if: (1) construction of the Project were to move or excavate previously undisturbed geologic bedrock (native rock); and (2) the bedrock were to be disturbed has a high paleontological potential.

As discussed in the setting, the Project area, the location of a former quarry, has no unique geological features and little to no potential to yield paleontological resources because it is predominantly underlain by artificial fills, which are engineered mixtures of sand, silt or gravel that would not contain unique or significant fossils. Excavation and earthwork associated with Project construction could possibly encounter Holocene alluvium as well; however, this unit is unlikely to contain paleontological resources because the area is highly disturbed from previous construction and ongoing maintenance and the minimal depth of disturbance in native soils. Thus, construction-related impacts on paleontological resources would be **less than significant**.

Based on the nature of the Project, there would be **no impact** on paleontological resources or unique geological features related to operations. Since operation and maintenance would not involve excavation work, there would not be any direct or indirect impacts on paleontological resources.

Mitigation Measures

None required.

3.H.4 References

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3.I Greenhouse Gas Emissions

This section describes the environmental and regulatory setting of the Project site and surrounding area with respect to greenhouse gas (GHG) emissions, and includes an analysis of impacts related to GHG emissions from the Project. For the purposes of this assessment, the following topics are considered: an overview of climate change; a review of the various GHGs that have been identified as drivers of climate change; pertinent regulations, including those relevant at federal, state, and local levels; significance criteria for environmental impacts; and impacts and appropriate mitigation measures associated with Project construction and operation. Air quality emissions, including criteria air pollutants, are considered in Section 3.C, Air Quality. If needed, District best management practices (BMPs) and mitigation measures to avoid or reduce significant impacts are also identified.

3.I.1 Environmental Setting

Climate Change

There is general scientific consensus that climate change is occurring and is almost certainly attributed to human activities. Man-made emissions of GHGs, if not sufficiently curtailed, are likely to contribute further to continued increases in global temperatures. Strong scientific evidence documents that the climate is changing and that its impacts are widespread and occurring now. In California, this evidence includes increases in extreme heat, wildfires, extreme storms, coastal flooding and erosion, and reductions in Sierra Nevada springtime snow pack and threats to water availability (CARB, 2014). Globally, climate change has the potential to adversely affect numerous environmental resources through potential, though uncertain, impacts related to future air and water temperatures, precipitation patterns, and an array of other factors. According to the International Panel on Climate Change (IPCC), several indicators of climate change are advancing faster than in previous assessments (IPCC, 2014):

- Changing precipitation and snow melt patterns;
- Negative effect on crop yield;
- Increased heat waves, drought, flood, wildfires, and storm events;
- Reduced renewable water resources in most dry subtropical regions; and
- Ocean acidification damage to marine ecosystems.

Also, there are many secondary effects projected to result from global warming, including impacts to agriculture, changes in disease vectors, changes in habitat suitability, and potential for reduction of biodiversity. While the possible outcomes and the feedback mechanisms involved are not fully understood and much research remains to be done, the potential for substantial environmental, social, and economic consequences over the long term may be great.

Greenhouse Gases

GHG emissions that result from human activities primarily include carbon dioxide (CO_2), with much smaller amounts of nitrous oxide (N_2O), methane (CH_4, often from unburned natural gas), sulfur hexafluoride (SF_6) from high-voltage power equipment, and hydrofluorocarbons (HFCs) and perfluorocarbons (PFCs) from refrigeration/chiller equipment. Because these GHGs have different warming potentials (i.e., the amount of heat trapped in the atmosphere by a certain mass of the gas), and CO_2 is the most common reference gas for climate change, GHG emissions are often quantified and reported as CO_2-equivalent (CO_2e) emissions. For example, while SF_6 represents a small fraction of the total annual GHGs emitted worldwide, this gas is very potent, with 22,800 times the global warming potential (GWP) of CO_2. Therefore, an emission of 1 metric ton of SF_6 would be reported as 22,800 metric tons CO_2e. The GWP of CH_4 and N_2O are 25 times and 298 times that of CO_2, respectively (CARB, 2016).

Statewide emissions of GHG from relevant source categories for 2010 through 2016 are summarized in **Table 3.I-1**. Specific contributions from individual air basins, such as the San Francisco Bay Area Air Basin, which encompasses the Project area, are included in the emissions inventory but are not itemized by air basin. In 2016, California produced 429.34 million gross metric tons of CO_2e emissions. Transportation was the source of 41 percent of the state's GHG emissions, followed by industrial at 23 percent, electricity generation at 16 percent, commercial and residential sources at 12 percent, and agriculture and forestry comprised the remaining 8 percent (CARB, 2018).

TABLE 3.I-1
CALIFORNIA GHG EMISSIONS (MILLION METRIC TONS CO_2E)

Emission Inventory Category	2010	2011	2012	2013	2014	2015	2016	
Electricity Generation (In State)	46.91	41.37	51.18	49.6	51.81	50.21	42.67	10%
Electricity Generation (Imports)	43.67	46.94	44.15	40.24	36.56	33.88	26.28	6%
Transportation	170.16	166.52	166.16	165.8	167.14	170.89	174.01	41%
Industrial	100.93	100.63	100.89	103.75	104.23	102.1	100.37	23%
Commercial	20.09	20.73	21.11	21.64	21.37	22.07	23.04	5%
Residential	31.26	32.03	30.04	31.19	26.26	27.05	28.34	7%
Agriculture and Forestry	34.27	34.89	36.08	34.61	35.95	34.41	33.84	8%
Not Specified (Solvents & Chemicals)	0.82	0.79	0.78	0.77	0.78	0.79	0.79	0%
Total Gross Emissions	448.11	443.9	450.39	447.6	444.1	441.4	429.34	100%

NOTE: The GHG percentages of the total gross emissions for year 2016 were rounded to the nearest whole number.
SOURCE: CARB, 2018.

Greenhouse Gas Sources

There is an important distinction between the two general sources of GHG emissions:

- ***Anthropogenic*** GHG emissions derived from the combustion of fossil fuels. Energy-related CO_2 emissions, resulting from fossil fuel exploration and use, account for approximately three-quarters of the human-generated GHG emissions in the United States, primarily in the form of CO_2 emissions from burning fossil fuels. More than half of the energy-related emissions come from large stationary sources such as power plants; approximately one-third derive from transportation; while industrial processes, agriculture, forestry, other land uses, and waste management compose a majority of the remaining sources (U.S. EPA, 2016a). Anthropogenic emissions also include by-products of certain human-managed biological processes, such as anaerobic decomposition of organic waste in landfills, wastewater treatment, and treatment of wastes from confined animal facilities such as dairies.
- ***Biogenic*** GHG emissions are derived from natural sources, including the natural decomposition of biomass[1] and combustion of biomass or biomass-derived fuels.

The distinction between anthropogenic and biogenic sources of GHG emissions is important because these sources have different impacts on the global carbon cycle. Carbon in fossil fuel reservoirs, such as coal seams and oil and gas deposits, was removed from the atmosphere by plants over millions of years. Through geologic processes, this carbon accumulated in deposits and was isolated from the active carbon cycle. Without human intervention, fossil-fuel carbon would remain isolated from the active carbon cycle into the future. Through extraction and combustion of fossil fuels, humans release this carbon, increasing the total amount of carbon in the atmosphere and in the active carbon cycle.

In contrast to fossil-fuel carbon, carbon present in biomass is cycling through the atmosphere and global carbon cycle on a much faster scale. For example, over the course of a year, carbon removed from the atmosphere by growing agricultural crops is released back into the atmosphere through the harvest, and subsequent respiration, decomposition, or combustion of the produced/residual biomass. Over short time scales, the carbon mass released by the decomposition of biomass will generally equal the carbon mass taken up by living organisms. Because biogenic carbon is constantly being released and taken up in the carbon cycle, biogenic CO_2 emissions do not act to increase the total amount of carbon in the atmosphere in the same way as the release of carbon from fossil fuels (U.S. EPA, 2014).

[1] Biomass is non-fossilized organic matter from plants, animals, and microorganisms, including products, byproducts, and wastes from agriculture, forestry and related industries, as well as the non-fossilized biodegradable fractions of industrial and municipal wastes, including gases and liquids recovered from its decomposition.

3.I.2 Regulatory Setting

Federal Regulations

U.S. Environmental Protection Agency (U.S. EPA)

On April 2, 2007, in *Massachusetts v. U.S. EPA*, 549 US 497, the Supreme Court found that GHGs are air pollutants covered by the Clean Air Act. The Court held that the U.S. EPA must determine whether emissions of GHGs from new motor vehicles cause or contribute to air pollution, which may reasonably be anticipated to endanger public health or welfare, or whether the science is too uncertain to make a reasoned decision. In making these decisions, the U.S. EPA is required to follow the language of Section 202(a) of the Clean Air Act, which obligates it to prescribe (and from time to time revise) standards applicable to the emission of any air pollutant from any class or classes of new motor vehicles or new motor vehicle engines. The Supreme Court decision resulted from a petition for rulemaking under Section 202(a) filed by more than a dozen environmental, renewable energy, and other organizations.

On April 17, 2009, the U.S. EPA Administrator signed proposed “endangerment” and “cause or contribute” findings for GHGs under Section 202(a) of the Clean Air Act. The U.S. EPA found that six GHGs, taken in combination, endanger both the public health and the public welfare of current and future generations. The U.S. EPA also found that the combined emissions of these GHGs from new motor vehicles and new motor vehicle engines contribute to the greenhouse effect as air pollution that endangers public health and welfare under Clean Air Act Section 202(a). Pursuant to 40 CFR Part 52, Proposed Prevention of Significant Deterioration and Title V Greenhouse Gas Tailoring Rule, U.S. EPA has mandated that Prevention of Significant Deterioration (PSD) and Title V requirements apply to facilities whose stationary source CO_2e emissions exceed 100,000 tons per year (U.S. EPA, 2016b).

U.S. Supreme Court Decision in Utility Air Regulatory Group v. U.S. EPA

On June 23, 2014, the U.S. Supreme Court held that U.S. EPA may not treat GHG emissions as an air pollutant for purposes of determining whether a source is a major source required to obtain a PSD or Title V permit. The Court also held that PSD permits that are otherwise required (based on emissions of other pollutants) may continue to require limitations on GHG emissions based on the application of best available control technology (BACT). In accordance with the Supreme Court decision, on April 10, 2015, the D.C. Circuit issued an amended judgment in Coalition for Responsible Regulation, Inc. v. U.S. Environmental Protection Agency, which vacated the PSD and Title V regulations under review in that case to the extent that they require a stationary source to obtain a PSD or Title V permit solely because the source emits or has the potential to emit GHGs above the applicable major source thresholds. The D.C. Circuit also directed U.S. EPA to consider whether any further revisions to its regulations are appropriate, and if so, to undertake to make such revisions. In response to the Supreme Court decision and the D.C. Circuit’s amended judgment, the U.S. EPA intends to conduct future rulemaking action to make appropriate revisions to the PSD and operating permit rules (U.S. EPA, 2016b).

State Regulations

There are a variety of statewide rules and regulations that have been implemented or are in development in California that mandate the quantification or reduction of GHGs. Under CEQA, analysis and mitigation of GHG emissions and climate change in relation to a proposed project is required where the lead agency determines that a project would result in a significant addition of GHGs to the atmosphere.

Executive Order S-3-05

Executive Order S-3-05 was established by Governor Arnold Schwarzenegger in June 2006 and establishes statewide emission reduction targets through the year 2050 as follows:

- By 2010, reduce GHG emissions to 2000 levels;
- By 2020, reduce GHG emissions to 1990 levels; and
- By 2050, reduce GHG emissions to 80 percent below 1990 levels.

This executive order does not include any specific requirements that pertain to the Project; however, future actions taken by the state to implement these goals may affect the Project, depending on the specific implementation measures that are developed.

Assembly Bill 32

California Assembly Bill (AB) 32, *the Global Warming Solutions Act of 2006*, required the California Air Resources Board (CARB) to establish a statewide GHG emissions cap for 2020 based on 1990 emission levels. AB 32 required CARB to adopt regulations that identify and require selected sectors or categories of emitters of GHGs to report and verify their statewide GHG emissions, and CARB is authorized to enforce compliance with the program. Under AB 32, CARB also was required to adopt a statewide GHG emissions limit equivalent to the statewide GHG emissions levels in 1990, which must be achieved by 2020. CARB updated its established limit from December 2007 to 431 million metric tons of CO_2e based on updated GWPs from the IPCC's Fourth Assessment Report. This is approximately 15 percent below forecasted "business-as-usual" emissions of 509 million metric tons of CO_2e in 2020 (CARB, 2014). In the interest of achieving the maximum technologically feasible and cost-effective GHG emission reductions, AB 32 permits the use of market-based compliance mechanisms and requires CARB to monitor compliance with and enforce any rule, regulation, order, emission limitation, emissions reduction measure, or market-based compliance mechanism that it adopts.

Climate Change Scoping Plan (AB 32 Scoping Plan)

In December 2008, CARB approved the AB 32 Scoping Plan outlining the State's strategy to achieve the 2020 GHG emissions limit. The Scoping Plan estimates a reduction of 174 million metric tons CO2e (about 191 million tons) from the transportation, energy, agriculture, forestry, and high climate-change-potential sectors, and proposes a comprehensive set of actions designed to reduce overall GHG emissions in California, improve the environment, reduce dependence on oil, diversify California's energy sources, save energy, create new jobs, and enhance public health.

Appendices C and E of the adopted 2008 AB 32 Scoping Plan include a list of 39 recommended action measures to reduce GHG emissions (CARB, 2009). Of these measures, none are directly relevant to the Project. The AB 32 Scoping Plan must be updated every five years to evaluate the adopted mix of AB 32 policies to ensure that California is on track to achieve the 2020 GHG reduction goal. CARB has released two Scoping Plan Updates in May 2014 and November 2017 (for additional information about the 2017 Scoping Plan Update, refer to *Executive Order B-30-15* discussion, below). There are no recommended actions identified in the Scoping Plan Update that are directly applicable to the Project.

Senate Bill 97

In 2007, the California State Legislature passed Senate Bill (SB) 97, which required amendment of the CEQA Guidelines to incorporate analysis of, and mitigation for, GHG emissions from projects subject to CEQA. The amendments took effect March 18, 2010. The amendments add Section 15064.4 to the CEQA Guidelines, specifically addressing the potential significance of GHG emissions. Section 15064.4 neither requires nor recommends a specific analytical methodology or quantitative criteria for determining the significance of GHG emissions. Rather, the section calls for a "good faith effort" to "describe, calculate, or estimate" GHG emissions and indicates that the analysis of the significance of any GHG impacts should include consideration of the extent to which the project would:

- Increase or reduce GHG emissions;
- Exceed a locally applicable threshold of significance; or
- Comply with "regulations or requirements adopted to implement a statewide, regional, or local plan for the reduction or mitigation of greenhouse gas emissions."

The CEQA Guidelines also state that a project may be found to have a less than significant impact related to GHG emissions if it complies with an adopted plan that includes specific measures to sufficiently reduce GHG emissions (Section 15064(h)(3)). Importantly, however, the CEQA Guidelines do not require or recommend a specific analytical methodology or provide quantitative criteria for determining the significance of GHG emissions.

Executive Order B-30-15

In April 2015, Governor Edmund G. Brown Jr. issued an executive order to establish a California GHG reduction target of 40 percent below 1990 levels by 2030. Reaching this emission reduction target will make it possible for California to reach its ultimate goal of reducing emissions 80 percent under 1990 levels by 2050, as identified in Executive Order S-3-05. Executive Order B-30-15 also specifically addresses the need for climate adaptation and directs state government to:

- Incorporate climate change impacts into the state's Five-Year Infrastructure Plan;

- Update the Safeguarding California Plan, the state climate adaption strategy to identify how climate change will affect California infrastructure and industry and what actions the state can take to reduce the risks posed by climate change;
- Factor climate change into state agencies' planning and investment decisions; and
- Implement measures under existing agency and departmental authority to reduce GHG emissions (OGB, 2015).

Executive Order B-30-15 required CARB to update the AB 32 Climate Change Scoping Plan to incorporate the 2030 target. CARB adopted the 2017 Scoping Plan for achieving the 2030 target, which takes into account the key programs associated with implementation of the AB 32 Scoping Plan--such as GHG reduction programs for cars, trucks, fuels, industry, and electrical generation--and builds upon, in particular, existing programs related to the Cap-and-Trade Regulation; the Low Carbon Fuel Standard; much cleaner cars, trucks, and freight movement; power generation for the State using cleaner renewable energy; and strategies to reduce methane emissions from agricultural and other wastes by using it to meet the State's energy needs. The 2017 Scoping Plan also addresses, for the first time, GHG emissions from natural and working lands, including the agriculture and forestry sectors (CARB, 2017).

Senate Bill 32 and Assembly Bill 197

On August 23, 2016, the California Assembly passed SB 32, legislation that would extend California's landmark climate change legislation to require that California reduce its emissions to 40 percent below 1990 levels by 2030, an extension of AB 32's goal to reduce emissions to 1990 levels. SB 32 became fully enacted the next day when AB 197 was passed, as an amendment to SB 32 stated that it would only become operative if AB 197 was enacted. AB 197's key components are:

- Directs CARB to enact environmental justice and social costs when designing climate change regulations.
- Creates a new entity called the Joint Legislative Committee on Climate Change Policies, authorized to do fact-finding and make recommendations to the Legislature regarding the state's climate change programs.
- Makes substantial changes to how CARB functions, increasing the board member size, adjusting the terms of service, and strengthens the board member service disqualification process.
- Intention to decrease CARB's reliance on cap-and-trade to achieve reductions and instead directs CARB to prioritize direct emission reductions at large stationary sources.

Local Policies

Bay Area Air Quality Management District (BAAQMD)

The BAAQMD lays the groundwork for GHG emissions reductions through the 2017 Clean Air Plan (2017 CAP). The 2017 CAP provides a long-term vision of how the Bay Area could and function in a year 2050 post-carbon economy, and describes a control strategy that the

BAAQMD will implement over the next 3 to 5 years. The 2017 CAP also includes measures designed to reduce GHG emissions.

City of San José

The City has several documents that guide the reduction of GHG emissions, including the *Envision San José 2040 General Plan* (General Plan), Municipal Code, and several GHG-specific documents and policies, described below.

Envision San José 2040 General Plan and the Greenhouse Gas Reduction Strategy

The General Plan has several policies related to GHG emissions. The policies generally encourage the City to reduce GHG emissions by implementing the Urban Village Planning process to reduce vehicle miles travelled and to review the City's progress in implementing the City Council's Climate Action Plan/Greenhouse Gas Reduction Strategy.

The General Plan includes a Greenhouse Gas Reduction Strategy (GHG Reduction Strategy) embedded in its policies and programs that are designed to help the City sustain its natural resources, grow efficiently, and meet state legal requirements for GHG emissions reduction. Multiple policies and actions in the General Plan have GHG implications, including land use, housing, transportation, water usage, solid waste generation and recycling, and reuse of historic buildings.

The General Plan policies that provide for reduced GHG emissions associated with new development and redevelopment are listed in Attachment B of the GHG Reduction Strategy. CEQA review for all development proposals in the City are required to address the consistency of individual projects with the goals and policies in the General Plan designed to reduce GHG emissions. The City's Green Vision, as reflected in these policies, also has a monitoring component that allows for adaptation and adjustment of City programs and initiatives related to sustainability and associated reductions in GHG emissions. The GHG Reduction Strategy is intended to meet the mandates as outlined in the CEQA Guidelines and the recent standards for "qualified plans" as set forth by BAAQMD.

The GHG Reduction Strategy identifies GHG emissions reduction measures to be implemented by development projects in three categories: built environment and energy, land use and transportation, and recycling and waste reduction. Some measures are mandatory for all proposed development projects and others are voluntary. To tier from the City's GHG Reduction Strategy, a project must conform to the GP 2040 Land Use Diagram designation and implement the applicable mandatory measures in Attachment B of the strategy. Compliance with the mandatory measures and voluntary measures required by the City helps ensure an individual project's consistency with the GHG Reduction Strategy.

In identifying the Project's conformance with applicable state and local policies, the City's GHG Reduction Strategy, General Plan, and General Plan EIR only address GHG emissions with respect to building structures (i.e., residential and buildings), not the construction activity itself. Most of the Project's GHG emissions would result from construction activity and would have relatively low operation emissions from an electric pumping station which is also not specifically addressed by these policy measures. Therefore, these policies are not considered applicable to the Project.

Municipal Code

The City's Municipal Code includes regulations for energy efficiency and energy use. City regulations include a Green Building Ordinance (Chapter 17.84) to foster practices to minimize the use and waste of energy, water, and other resources in the City, Water Efficient Landscape Standards for New and Rehabilitated Landscaping (Chapter 15.10), and a Construction and Demolition Diversion Deposit Program that fosters recycling of construction and demolition materials (Chapter 9.10). Implementation of these regulations reduces GHG emissions during and after site development and redevelopment.

3.I.3 Impacts and Mitigation Measures

Significance Criteria

For the purposes of this EIR, a GHG emissions impact is significant if the Project would:

- Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment; or
- Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases.

With regards to the first GHG impact criterion, CEQA allows for the significance criteria established by the applicable air district to be used to assess the impact of a project relative to GHG emissions. For land use projects with operations that are not stationary sources, the BAAQMD's CEQA Guidelines recommend use of an operational significance threshold of 1,100 metric tons CO_2e per year and for stationary source projects the recommended significance threshold is 10,000 metric tons CO_2e per year (BAAQMD, 2017). Since the Project would include no new stationary operational sources of GHG emissions, the stationary source significance threshold of 10,000 metric tons CO_2e per year is not an appropriate threshold to gauge impact significance of the Project.

Therefore, even though the Project is not a typical land use development project, this EIR nonetheless uses the significance threshold of 1,100 metric tons CO_2e per year to evaluate whether the Project's GHG emissions could have a significant impact on the environment. Use of this threshold results in approximately 59 percent of all projects being above the significance threshold and having to implement feasible mitigation measures to meet their CEQA obligations. These projects account for approximately 92 percent of all GHG emissions anticipated to occur between now and 2020 from new land use development in the Bay Area (BAAQMD, 2017). If all land use-related Project emissions are mitigated to below this threshold, it would represent an overall reduction in new land use project-related emissions of up to 92 percent.

It is acknowledged that this significance threshold was developed to focus on emissions reductions by 2020, and that BAAQMD staff and CARB have not yet provided guidance or recommendations for significance thresholds to evaluate consistency with emissions reduction goals for years beyond 2020. The Executive Order B-30-15 and 2017 Scoping Plan emissions reductions goal of lowering GHG emissions to 40 percent below 1990 levels by 2030 is roughly equivalent to reducing emissions by 40 percent below current levels and the Executive Order S-3-05 emissions reductions goal of lowering GHG emissions to 80 percent below 1990 levels by 2050 is roughly equivalent to reducing emissions by 80 percent below current levels. In addition, BAAQMD does not have quantitative thresholds of significance for GHG emissions from a project's construction. Instead, BAAQMD recommends lead agencies quantify and disclose GHG emissions that would occur during construction and make a determination on the significance of these construction-generated GHG impacts.

In the absence of significance thresholds specifically designed to focus on operational emissions reductions beyond 2020 and construction emissions, the Santa Clara Valley Water District (the District), as the lead agency, has determined that the sum of the Project's annual operation-related GHG emissions and the Project's amortized construction-related GHG emissions over its useful life[2] should be compared to the BAAQMD's operation-related GHG threshold of significance for projects other than stationary sources, which is 1,100 metric tons CO_2e (BAAQMD, 2017).

With regard to the second GHG impact criterion, CEQA Guidelines state that a project may be found to have a less than significant impact related to GHG emissions if it complies with an adopted plan that includes specific measures to sufficiently reduce GHG emissions (Section 15064(h)(3)). As stated above, the Project's GHG emitting activities are not addressed by the City's GHG policies which take into account the state's GHG reduction goals. However, the Project would comply with the City's applicable GHG-related municipal codes.

Approach to Analysis

Construction- and operation-related emissions that would be associated with the Project have been quantified using the methods presented for comparison to a threshold determined by the District as the lead agency. If the estimated Project GHG emissions are over the applicable threshold and cannot be mitigated to below it, the Project's impacts related to generation of GHG emissions could result in a significant impact. The Project has also been evaluated for consistency with the City's GHG Reduction strategy and the state's 2017 Scoping Plan Update. If the Project conforms to the General Plan Land Use / Transportation Diagram and with policies governing the specific land use designation, it can be found to conform to the GHG Reduction Strategy and would result in a less than significant impact. As stated above, the City's GHG Reduction Strategy, General Plan, and General Plan EIR only address GHG emissions with respect to the building structures (i.e., residential and buildings), not the construction activity itself. The Project's GHG emissions would result from construction activity related to the improvement of Almaden Lake and operation of an electric

[2] The Project's useful life is estimated to be 30 years.

pumping station. Therefore, these policies are not considered applicable to the Project for a consistency determination.

Construction Emissions

GHG emissions that would be associated with the on-site and off-site construction-related activity for the Project were estimated using the California Emissions Estimator Model, version 2016.3.2 (CalEEMod). CalEEMod was developed by the South Coast Air Quality Management District and other California air districts for the specific purpose of assisting lead agencies in determining a project's air quality and GHG impacts. The model combines the databases from both CARB's EMFAC and OFFROAD models into a single tool and estimates the Project's GHG emissions producing activities as metric tons CO_2e. A standalone spreadsheet with industry-based locomotive emission calculations was utilized to derive GHG emissions from the rail hauling of mercury-laden sediment removed from Almaden Lake.

Assumptions and calculations were developed in consultation with District staff to reflect each phase of the Project's construction. This information consisted of a phased construction schedule along with a list of off-road construction equipment, worker trips, vendor trips, and hauling trips required to complete the Project. This information was then entered into CalEEMod to produce the Project's annual construction-related GHG mass emissions. CalEEMod defaults were used for Project components in which there were no project-specific data. Appendix B contains the construction schedule, assumptions, emissions summary tables, and CalEEMod output sheets used to quantify the Project's construction GHG emissions.

The District identified two disposal options for lake bed sediment, if it is found to be contaminated: hauling via heavy duty trucks to an approved disposal site in Kettleman City, California or hauling via heavy duty trucks to the Port of Oakland, loaded onto railcars and shipped via rail to an approved disposal site in Utah. In order to provide the most conservative and worst-case scenario, GHG emissions were calculated for the second, farther truck hauling distance with railcar shipping option. A standalone locomotive and railroad spreadsheet containing specific data such as diesel fuel consumption, number of railroad cars needed, railroad car capacities, railroad car weights, etc., was created to quantify GHG emissions from the hauling of removed lake bed sediment. Given that impacts from a project's GHG emissions would be global in nature regardless of where they are emitted, GHG emissions for the entire roundtrip rail distance from Oakland, California, to Salt Lake City, Utah were calculated and added to the Project's on-site and off-site GHG emissions. Appendix B contains the standalone spreadsheet used for these calculations.

Operation Emissions

Operation-related GHG emissions that would be associated with the Project were quantified outside of CalEEMod.

The City of San José would be responsible for maintenance of the new open park area, while anticipated maintenance activities for the District would include embankment and levee inspection and repair, sediment removal from the restored creek, levee settlement adjustment, restored vegetation maintenance and management along the restored creek and islands, lake water quality monitoring, and maintenance road grading and upkeep.

Maintenance of the new park area would be incorporated into existing City maintenance at the park and would not generate new traffic or emissions. Maintenance of the restoration plantings is estimated to require one additional truck trip would occur every two weeks for the first three years after construction of the Project. Maintenance of the new levee would require visits by District crews a couple times a year. Embankment repair and levee settlement adjustment would only be required if necessary; the Project would be designed to be stable and not require such maintenance. Sediment removal is estimated to be needed only every ten years and would require a small work crew a week or two to complete the work. The Project would also generate indirect GHG emissions from an electric pump station that would run intermittently.

Impact Summary

Table 3.I-2 provides a summary of impacts to greenhouse gas emissions.

TABLE 3.I-2
SUMMARY OF GREENHOUSE GAS EMISSIONS IMPACTS

Impact Statement	Construction	Operation
Impact 3.I-1: The Project would not generate GHG emissions that would be above the District's threshold of significance for GHG emissions.	LS	LS
Impact 3.I-2: The Project would not conflict with applicable plans, policies, and regulations adopted for the purposes of reducing GHG emissions.	LS	LS

LS = Less than significant

Impacts and Mitigation Measures

Impact 3.I-1: The Project would not generate GHG emissions that would be above the District's threshold of significance for GHG emissions. (Less than Significant)

Construction and Operation Emissions

Table 3.I-3 shows the GHG emissions estimated to be generated by construction activities that would be associated with the Project. The Project's construction would commence no earlier than June 2021 and finish in 2023. As shown in Table 3.I-3, the Project's construction would generate a total of 5,949 metric tons CO_2e. Refer to Section 3.I.3, Approach to Analysis, for a discussion of the methods used to estimate construction emissions, and Appendix B, for details on the calculations and assumptions used to estimate the construction emissions.

TABLE 3.I-3
TOTAL ESTIMATED GHG CONSTRUCTION EMISSIONS

Source	CO_2e (metric tons)
On-site and Off-site Construction	5,281
Railroad Hauling	668
Total Construction	5,949

SOURCE: Appendix B.

Future operations of the Project would include maintenance of the restoration plantings for three years, occasional inspection and maintenance of the levee, continued City maintenance of the Park, and sediment removal and bank protection activities. Sediment removal is only anticipated to be needed once every ten years and would only last a few weeks in duration. **Table 3.I-4** shows the estimated annual GHG emissions that would be directly and indirectly generated each year related to operation and maintenance of the Project. The total estimated annual operation and maintenance emissions that would be associated with the Project are approximately 211 metric tons CO_2e. For a discussion of the methods used to estimate the operation and maintenance emissions, see the Approach to Analysis section above; for details on the calculations and assumptions used to estimate the operation emissions, refer to Appendix B.

TABLE 3.I-4
TOTAL ESTIMATED GHG OPERATION EMISSIONS

Source	CO2e/year (metric tons)
Energy	211
Mobile	< 1
Total	**211**

SOURCE: Appendix B.

As described in the Approach to Analysis section (above), the District, acting as the lead agency, determined that a comparison to the Project's total amortized construction and operational GHG emissions should be compared to the BAAQMD's operational threshold of significance for non-stationary sources. **Table 3.I-5** shows that the Project's total amortized construction and operational GHG emissions would be below the applicable threshold. Therefore, this impact would be **less than significant**.

Mitigation Measures

None required.

TABLE 3.I-5
TOTAL AMORTIZED GHG EMISSIONS

Source	CO2e/year (metric tons)
30-year Total Amortized Construction	198
Total Operation Emissions	211
Total Amortized Construction and Operation Emissions	409
BAAQMD GHG Mass Emissions Threshold for Non-Stationary Sources	1,100
Threshold Exceeded?	**No**

SOURCE: Appendix B.

Impact 3.I-2: The Project would not conflict with applicable plans, policies, and regulations adopted for the purposes of reducing GHG emissions. (Less than Significant)

Construction and Operation

Applicable plans, policies, and regulations promulgated by the City are discussed previously. The Project would conform to the General Plan Land Use/Transportation Diagram as the Project site would retain its designation as Open Space, Parklands, and Habitat. The Project would re-establish water efficient landscaping pursuant to Chapter 15.01 of the City's municipal code,[3] and would also re-use on-site up to 80 percent of the cut soil volume, pursuant to the City's Construction and Demolition Diversion Deposit Program that fosters recycling of construction and demolition materials.[4]

As mentioned above, the Project's construction GHG emissions and operational GHG emissions from the pump station are not addressed by the City's GHG Reduction Strategy, General Plan, or General Plan EIR, which directly relate to the state's GHG reduction policies and goals, and although there are no recommended actions identified in the 2017 Scoping Plan Update that are directly applicable to the Project, construction and operations associated with the Project would be consistent with applicable 2017 Scoping Plan provisions. Additionally, as discussed for Impact 3.I-1, the Project would be in conformance with BAAQMD GHG emissions thresholds. Therefore, the Project would comply with the City's applicable municipal codes and other applicable plans, policies, and regulations for reducing GHG emissions, and this impact is considered **less than significant**.

3 The vegetation and landscaping would be consistent with existing conditions, except that vegetation would be planted in different locations. Therefore, changes in vegetation or landscaping resulting from the Project would not result in a change in vegetation related GHG emissions.

4 On-site re-use of cut lakebed sediment and soil would occur for sediments that are below the contamination thresholds identified in the Project Description.

Mitigation Measures

None required.

3.I.4 References

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3.J Hazards and Hazardous Materials

This section describes the environmental and regulatory setting of the Project area with respect to hazards and hazardous materials, and includes an analysis of hazardous impacts from the Project. District best management practices (BMPs) and mitigation measures to avoid or reduce significant impacts are also identified.

Stream and lake water quality, including issues and impacts surrounding the management of methylmercury as a water quality pollutant are discussed in Section 3.K, Hydrology and Water Quality.

3.J.1 Environmental Setting

Definition of Hazardous Materials

A hazardous material is defined 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 if released into the workplace or the environment (State Health and Safety Code Chapter 6.95, Section 25501(o)). The term "hazardous materials" refers to both hazardous substances and hazardous wastes. Under federal and state laws, any material, including wastes, may be considered hazardous if it is specifically listed by statute as such or if it is toxic (causes adverse human health effects), ignitable (has the ability to burn), corrosive (causes severe burns or damage to materials), or reactive (causes explosions or generates toxic gases).

Hazardous wastes are hazardous substances that no longer have practical use, such as materials that have been spent, discarded, discharged, spilled, contaminated, or are being stored until they can be disposed of properly (Title 22 California Code of Regulations [CCR] Section 66261.10). Soil that is excavated from a site containing hazardous materials is a hazardous waste if it exceeds specific 22 CCR criteria (Sections 66261.20 through 66261.24). While hazardous substances are regulated by multiple agencies, as described in the Regulatory Setting below, cleanup requirements of hazardous wastes are determined on a case-by-case basis according to the agency with lead jurisdiction over the project.

Preschools, schools, daycare centers, nursing homes, and hospitals are considered sensitive receptors for hazardous materials because children and the elderly are more susceptible than adults to the effects of many hazardous materials.

Regional Setting

Almaden Lake is a former quarry located on Alamitos Creek and downstream of the former New Almaden Mining District (RWQCB, 2008; SCVWD, 2015). This mining district included former mines that produced mercury used to extract gold during the California gold rush and continued to extract mercury up until about 1970. Because mining waste was not contained on these mine sites, the wastes continue to erode and discharge mercury-laden sediments to streams in the watershed. The mercury-laden sediments are transported by rivers and streams, and migrate to reservoirs, lakes, shallow impoundments, and wetland areas, where mercury is converted to methylmercury under anoxic (oxygen-deficient) conditions. Methylmercury is taken up into the food chain, including fish, where it is toxic to humans and piscivorous predators.

In 1987, Santa Clara County issued a fish consumption advisory for mercury contamination. Mercury concentrations in fish tissue that exceed the U.S. EPA human health mercury fish criterion (0.3 milligrams per kilogram [mg/kg]) have been measured at numerous creeks and reservoirs in the Guadalupe River Watershed. In October 2008, the San Francisco Bay Regional Water Quality Control Board (RWQCB) adopted a Total Maximum Daily Load (TMDL) for mercury in the Guadalupe River Watershed into its San Francisco Bay Basin Water Quality Control Plan, as discussed below in Section 3.J.2, Regulatory Setting, Basin Plan and TMDL (RWQCB, 2008). TMDLs are actions required by the RWQCB to restore clean water.

Project Area

Chemicals at the Project Site

Several soil sampling events have been conducted to test for the presence of mercury and other chemicals in lake bottom sediments. The more recent results are compared to action levels to indicate the appropriate management of the sediments and are summarized below.

Lake Bottom Sediments

On October 7 and 8, 2014, the District contracted to have the sediments at the bottom of the lake sampled using a barge-mounted drill rig to evaluate chemical concentrations, particularly mercury (CE&G, 2015). Four sediment samples were analyzed for CAM 17 metals, a suite of metals that includes antimony, arsenic, barium, beryllium, cadmium, chromium, cobalt, copper, lead, mercury, molybdenum, nickel, selenium, silver, thallium, vanadium, and zinc (LASC, 2015). The results were compared to Environmental Screening Levels (ESLs; per RWQCB, December 2013) and to California thresholds for hazardous waste classification (Total Threshold Limit Concentrations [TTLCs]). ESLs are used to assess whether further action is necessary relative to cleaning up a given site. TTLCs are used as acceptance criteria for landfills to determine whether a material is classified as hazardous or non-hazardous waste. The analytical results are summarized below in **Table 3.J-1**. The analytical results for arsenic, mercury, and nickel in some samples exceeded the ESLs, indicating that further investigation and cleanup would be needed to address the detected chemicals. The analytical results for mercury in some samples exceeded the TTLCs, indicating that if these sediments are excavated and sent for offsite disposal, the sediments would have to be sent to a Class I landfill permitted to accept hazardous waste.

TABLE 3.J-1
SUMMARY OF LAKE BOTTOM SEDIMENT CHEMICAL RESULTS

Sample/ Chemical	WB-1-3 (3-3.5 feet)	WB-1-4 (8 feet)	WB-1-4 (3.5-4 feet)	WB-2-4 (9,5-10 feet)	ESLs	TTLCs
Antimony	0.85	1.2	1.4	0.54	20	500
Arsenic	**5**	**3.4**	**5.7**	**6.6**	0.39	500
Barium	91	79	110	120	750	10,000
Beryllium	ND	ND	0.16	0.17	4	75
Cadmium	0.15	ND	0.18	0.26	12	100
Chromium	120	93	100	77	1,000	2,500
Cobalt	16	15	16	13	23	8,000
Copper	29	39	25	25	230	2,500
Lead	11	3.1	26	47	80	1,000
Mercury	**29**	4.5	**26**	**17**	6.7	20
Molybdenum	ND	ND	ND	ND	40	3,500
Nickel	**190**	130	**180**	140	150	2,000
Selenium	ND	ND	ND	ND	10	100
Silver	ND	ND	ND	ND	20	500
Thallium	ND	ND	ND	ND	0.78	700
Vanadium	40	61	37	34	200	2,400
Zinc	56	65	52	63	800	5,000

NOTES:
Exceedances **bolded**/grey
All concentrations in milligrams per kilogram (mg/kg)
ND = not detected above the laboratory reporting limit
Concentrations in bold text exceed the TTLC
ESLs = Environmental Screening Levels, RWQCB, December 2013
TTLC = Total Threshold Limit Concentrations, California Code of Regulations, Title 22, Division 4.5, Chapter 11, Article 3, Section 66261.24(a)(2)

SOURCE: LASC, 2015

Shoreline Soil

On February 26, 27, and 28, 2014, the District contracted to have the soil around the shoreline of the lake sampled using a hand auger to evaluate reuse or disposal options in areas that may be graded (LASC, 2014). Sixteen soil samples were analyzed for CAM 17 metals. The results were compared to ESLs and TTLCs. The analytical results are summarized below in **Table 3.J-2**.

None of the concentrations exceeded TTLCs indicating the shoreline soil is not considered to be a hazardous waste. Some of the samples exceeded the ESL concentrations for arsenic, cobalt, mercury, and nickel. However, LASC concluded that the detected concentrations are consistent with naturally-occurring background concentrations for these metals in Bay Area soils. LASC concluded there are no restrictions on reusing or disposing of the shoreline soils.

TABLE 3.J-2
SUMMARY OF SHORELINE SOIL CHEMICAL RESULTS

Chemical	Sample Number (1408 - #)																ESLs	TTLCs
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16		
Antimony	<0.42	<0.48	<0.74	<0.50	<0.97	<0.38	<0.45	<0.49	3.3	8.6	1.4	2.7	1.6	1.1	1.6	1.1	20	500
Arsenic	**3.3**	**3**	**2.4**	**2.2**	**12**	<0.76	**1.5**	**1.8**	**5.6**	**5.7**	**3.3**	**4.1**	**4.3**	**5**	**4.8**	**6.3**	0.39	500
Barium	62	110	67	83	91	13	44	54	98	78	61	88	82	57	79	79	750	10,000
Beryllium	<0.085	0.2	<0.074	<0.10	0.28	<0.076	<0.091	0.11	<0.076	<0.095	<0.081	<0.091	<0.088	<0.083	<0.095	<0.097	4	75
Cadmium	<0.11	<0.12	<0.18	<0.13	<0.24	<0.095	<0.11	<0.12	<0.19	<0.24	<0.10	<0.23	<0.11	<0.21	<0.24	<0.12	12	100
Chromium	51	100	83	28	36	3.6	43	95	78	130	74	220	92	60	120	74	1,000	2,500
Cobalt	9	13	15	19	13	0.67	8.2	29	17	23	13	19	15	17	16	14	23	8,000
Copper	20	19	22	15	39	1.4	16	14	17	25	14	29	25	27	22	25	230	2,500
Lead	5.4	9.2	3.1	2.5	8.2	0.94	1.9	1.9	4.9	12	2.3	2.6	5.9	1.8	3.7	6.6	80	1,000
Mercury	**18**	0.55	**16**	0.15	5.5	0.024	0.4	0.28	**7.6**	5.9	5.5	0.37	5	1.5	2.3	3.8	6.7	20
Molybdenum	<0.42	<0.48	<0.37	<0.50	<0.49	<0.38	<0.45	<0.49	<0.38	<0.48	<0.40	<0.45	0.53	<0.42	<0.48	<0.49	40	3,500
Nickel	57	130	110	140	53	2.7	44	**600**	160	**230**	110	**180**	120	**290**	140	110	150	2,000
Selenium	<0.42	<0.48	<0.74	<0.50	<0.97	<0.38	<0.45	<0.49	<0.76	<0.95	<0.40	<0.91	<0.44	<0.83	<0.95	<0.49	10	100
Silver	<0.21	<0.24	<0.37	<0.25	<0.49	<0.19	<0.23	<0.25	<0.38	<0.48	<0.20	<0.45	0.22	<0.42	<0.48	<0.24	20	500
Thallium	<0.42	<0.48	<0.74	<0.50	<0.97	<0.38	<0.45	<0.49	<0.76	<0.95	<0.40	<0.91	<0.44	<0.83	<0.95	<0.49	0.78	700
Vanadium	41	41	53	34	33	3.2	37	31	55	57	36	67	48	46	55	37	200	2,400
Zinc	37	35	45	40	57	4.4	27	31	57	54	37	48	39	33	45	43	800	5,000

NOTES:

Exceedances **Bolded**/grey
Sample depths range from 0 to 5 feet
All concentrations in milligrams per kilogram (mg/kg)
ESLs = Environmental Screening Levels California Regional Water Quality Control Board-San Francisco Bay, December 2013
TTLC = Total Threshold Limit Concentrations, California Code of Regulations, Title 22, Division 4.5, Chapter 11, Article 3, Section 66261.24(a)(2)

SOURCE: LASC, 2014

Nearby Hazardous Materials Sites

As discussed above, historical mercury mines have resulted in the release of mercury to the environment and are the subject of the Project. The presence of other facilities within the area that use or store hazardous materials or hazardous wastes and have experienced unauthorized releases into soil or groundwater would complicate the Project if those releases have migrated to the Almaden Lake area.

In California, regulatory databases listing hazardous materials sites provided by numerous federal, state, and local agencies are consolidated in the “Cortese List” pursuant to Government Code Section 65962.5. The Cortese List is located on the website of the California Environmental Protection Agency (Cal EPA; http://www.calepa.ca.gov/sitecleanup/corteselist) and is a compilation of the following lists:

- List of Hazardous Waste and Substances sites from California Department of Toxic Substances Control (DTSC) EnviroStor database
- List of Leaking Underground Storage Tank Sites by County and Fiscal Year from the State Water Resources Control Board (SWRCB) GeoTracker database
- List of solid waste disposal sites identified by SWRCB with waste constituents above hazardous waste levels outside the waste management unit
- List of “active” Cease and Desist Orders and Cleanup and Abatement Orders from the SWRCB
- List of hazardous waste facilities subject to corrective action pursuant to Section 25187.5 of the Health and Safety Code, identified by DTSC and listed on their EnviroStor database

The five databases cited above identify sites with suspected and confirmed releases of hazardous materials to soil and/or groundwater. Closed sites are not considered because their status as closed means that they have been cleaned up to the satisfaction of regulatory agencies and are unlikely to affect surrounding areas. The following three sites listed on the Cortese List as located within one mile upstream or upgradient[1] of Almaden Lake, have documented releases, and are active cases[2] or cases recently closed in 2016.

Mazzone Property (No Further Action). This site is located along Alamitos Creek about 2,000 feet upstream and south of Almaden Lake (DTSC, 2016b). Soil and sediments at the Mazzone property were contaminated with mercury, lead, and pesticides. Groundwater is not known to be affected. The site was remediated by the excavation and removal of approximately 3,000 tons of contaminated soil between July and August of 2016. The soil was sent to an offsite disposal facility licensed to accept the material. Soil testing confirmed that the contaminated material has been removed and the DTSC issued a no further removal/remedial action letter.

1 Similar to upstream, an upgradient location is the source of groundwater to downgradient locations.
2 An active site is a site that is currently undergoing investigation and/or cleanup activities.

Almaden 16601 LLC (Closed). This currently-vacant lot was a previously-closed fuel leak site for a service station located about 3,500 south of Almaden Lake but not along Alamitos Creek. The underground storage tanks had been removed, remediation conducted, and the case closed on October 29, 2004 (County of Santa Clara [CSC], 2015b). This property is proposed as a day care center (CSC, 2016a). The property owners conducted a vapor survey to determine if residual fuels are present in soil at concentrations of concern given the proposed sensitive use (RWQCB, 2016). The results indicated that soil vapors were not present above action levels and the case was closed (CSC, 2016c).

Almaden Quicksilver County Park (Open). The County Park is located about 4 miles upstream of Almaden Lake and is the primary location of the historical mercury mining (DTSC, 2016a). Mercury mining and ore processing were conducted by a number of different entities at the New Almaden mining district from 1845 to 1975. Mercury occurs primarily in the mineral cinnabar (mercury sulfide). Mercury was extracted by heating the ore in retorts and furnaces to volatilize the mercury which was then condensed to liquid mercury. Processed ore (calcines) from the furnaces and retorts was dumped near the processing areas. All mining related operations ceased in 1975 when Santa Clara County purchased the property for use as a park. Five separate areas were investigated as part of this Project. They include areas the Mine Hill area, the Hacienda Furnace Yard, the Enriquita Mine Retort, the San Mateo Mine Retort, and Senator Mine. The mines are the source of mercury to downstream locations such as Almaden Lake.

Proximity to Schools

Schools are considered sensitive receptors for hazardous materials because children are more susceptible than adults to the effects of hazardous materials. There are no schools within ¼ mile of Almaden Lake.

Proximity to Airports

Aviation safety hazards can result if projects are sited on or in the vicinity of airports. Specifically, the land use compatibility plans at airports have land use restrictions, such as height, distracting light or glare, and attractants to wildlife, such as birds. There are no public or private airports located within 2 miles of Almaden Lake. The nearest airports are the public Mineta San José International Airport, located 7.5 miles to the north in San José, Moffet field located 14 miles northwest of the Project site, and the general aviation San Martin Airport, located 18 miles to the southeast in San Martin.

Emergency Response and Evacuation Plans

The Santa Clara County Operational Area Emergency Operations Plan establishes emergency organization, assigns tasks, specifies policies and general procedures, and provides for coordination of response in the event of an emergency (Santa Clara County, 2008). The plan does not identify specific emergency response or evacuation routes.

3.J.2 Regulatory Setting

Hazards and hazardous materials are subject to numerous federal, state, and local laws and regulations intended to protect health, safety, and the environment. The U.S. Environmental Protection Agency (USEPA), the DTSC, the RWQCB, and the County of Santa Clara are the primary agencies enforcing these regulations. Local regulatory agencies enforce many federal and state regulations through the Certified Unified Program Agencies (CUPA) program, discussed further below.

Federal Regulations

Primary federal agencies with responsibility for hazardous materials management include the USEPA, Department of Labor (Federal Occupational Health and Safety Administration [OSHA]), and Department of Transportation (DOT). Major federal laws and issue areas include the following statutes (and regulations promulgated there under):

- **Resources Conservation and Recovery Act (RCRA) 42 USC 6901 et seq.** RCRA is the principal law governing the management and disposal of hazardous materials. RCRA is considered a “cradle to grave” statute for hazardous wastes in that it addresses all aspects of hazardous materials from creation to disposal. Federal regulations for USTs derive from RCRA. RCRA applies to this Project because RCRA is used to define hazardous materials.

- **Emergency Planning and Community Right-to-Know Act (EPCRA from SARA Title III).** EPCRA improved community access to information regarding chemical hazards and facilitated the development of business chemical inventories and emergency response plans. EPCRA also established reporting obligations for facilities that store or manage specified chemicals. EPCRA applies to this Project because contractors will be required to prepare and implement written emergency response plans to properly manage hazardous materials during construction and respond to accidental spills.

- **DOT Hazardous Materials Transportation Act (49 USC 5101).** DOT, in conjunction with the USEPA, is responsible for enforcement and implementation of federal laws and regulations pertaining to safe storage and transportation of hazardous materials. The Code of Federal Regulations (CFR) 49, 171–180, regulates the transportation of hazardous materials, types of material defined as hazardous, and the marking of vehicles transporting hazardous materials. This Act applies to this Project because contractors will be required to comply with its storage and transportation requirements that would reduce the possibility of spills.

- **The Federal Motor Carrier Safety Administration (49 CFR Part 382).** The Federal Motor Carrier Safety Administration, a part of the DOT, issues regulations concerning highway routing of hazardous materials, the hazardous materials endorsement for a commercial driver’s license, highway hazardous material safety permits, and financial responsibility requirements for motor carriers of hazardous materials. This Act applies to this Project because contractors will be required to comply with its storage and transportation requirements that would reduce the possibility of spills.

- **Occupational Safety and Health Administration (OSHA; 29 USC 15).** OSHA is the federal agency responsible for ensuring worker safety. These regulations provide standards for safe workplaces and work practices, including those relating to hazardous materials handling. OSHA applies to this Project because contractors will be required to comply with its hazardous materials management and handling requirements that would reduce the possibility of spills.

- **Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA), 7 U.S.C. §136 et seq. (1996).** FIFRA provides for federal regulation of pesticide distribution, sale, and use ("pesticides" includes any herbicide, insecticide, rodenticide, algaecide, fungicide, or any combination of substances intended to prevent, destroy, or repel any pest). All pesticides distributed or sold in the United States must be registered (licensed) by the US EPA. Before US EPA may register a pesticide under FIFRA, the applicant must show, among other things, that using the pesticide according to specifications "will not generally cause unreasonable adverse effects on the environment." FIFRA defines the term "unreasonable adverse effects on the environment" to mean: "(1) any unreasonable risk to man or the environment, taking into account the economic, social, and environmental costs and benefits of the use of any pesticide, or (2) a human dietary risk from residues that result from a use of a pesticide in or on any food inconsistent with the standard under section 408 of the Federal Food, Drug, and Cosmetic Act." Training is required for workers in pesticide-treated areas and certification and training for applicators of restricted use pesticides.

State Regulations

The primary State agencies with jurisdiction over hazardous chemical materials management are the DTSC and the RWQCB. Other State agencies involved in hazardous materials management are the Department of Industrial Relations (State OSHA implementation), State Office of Emergency Services (OES)—CalARP implementation, California Air Resources Board (CARB), California Department of Transportation (Caltrans), State Office of Environmental Health Hazard Assessment (OEHHA—Proposition 65 implementation) and California Integrated Waste Management Board (CIWMB). Hazardous materials management laws in California include the following statutes and regulations promulgated there under.

- **Hazardous Waste Control Act (HWCA; California Health and Safety Code, Section 25100 et seq.).** The HWCA is the state equivalent of RCRA and regulates the generation, treatment, storage, and disposal of hazardous waste. This act implements the RCRA "cradle-to-grave" waste management system in California but is more stringent in its regulation of non-RCRA wastes, spent lubricating oil, small-quantity generators, transportation and permitting requirements, as well as in its penalties for violations. HWCA applies to this Project because contractors will be required to comply with its hazardous waste requirements that would reduce the possibility of spills.

- **California Hazardous Materials Release Response Plans and Inventory Law of 1985 (Business Plan Act).** The Business Plan Act requires preparation of Hazardous Materials Business Plans and disclosure of hazardous materials inventories, including an inventory of hazardous materials handled, plans showing where hazardous materials are stored, an emergency response plan, and provisions for employee training in safety and emergency response procedures (California Health and Safety Code, Division 20, Chapter 6.95, Article 1). Under the Health and Safety Code, in order to protect the public health and safety and the environment, it is necessary to establish business and area plans relating to the handling and release or threatened release of hazardous materials. Basic information on the location, type, quantity, and health risks of hazardous materials handled, used, stored, or disposed of in the state, which could be accidentally released into the environment, is required to be submitted to firefighters, health officials, planners, public safety officers, health care providers, regulatory agencies, and other interested persons. The information provided by business and area plans is necessary in order to prevent or mitigate the damage to the health and safety of persons and the environment from the release or threatened release of hazardous materials into the workplace and environment. Statewide, DTSC has primary regulatory responsibility for management of hazardous materials, with delegation of authority to local jurisdictions that enter into agreements with the state. Local agencies are responsible for administering these regulations.

Several state agencies regulate the transportation and use of hazardous materials to minimize potential risks to public health and safety, including CalEPA and the California Emergency Management Agency. The California Highway Patrol and Caltrans enforce regulations specifically related to the transport of hazardous materials. Together, these agencies determine container types used and license hazardous waste haulers for hazardous waste transportation on public roadways.

The Business Plan Act applies to this Project because contractors will be required to comply with its handling, storage, and transportation requirements that would reduce the possibility of spills, and to prepare an emergency response plan to respond to accidental spills.

- **California Division of Occupational Safety and Health (Cal/OSHA).** Cal/OSHA is responsible for developing and enforcing workplace safety standards and assuring worker safety in the handling and use of hazardous materials. Among other requirements, Cal/OSHA requires many entities to prepare injury and illness prevention plans and chemical hygiene plans, and provides specific regulations to limit exposure of construction workers to hazardous materials. OSHA applies to this Project because contractors will be required to comply with its handling and use requirements that would reduce the possibility of spills, and to prepare an emergency response plan to respond to accidental spills.

- **California Department of Pesticide Regulation (DPR), 3 CCR Food and Agriculture, Division 6. Pesticides and Pest Control Operations.** This section of the CCR addresses the use of pesticides and pest control operations ("pesticides" includes any herbicide, insecticide, rodenticide, algaecide, fungicide, or any combination of substances intended to prevent, destroy, or repel any pest). These regulations provide pesticide registration and licensing procedures, lists of restricted materials, work and worker safety requirements, and environmental protections for groundwater, surface water, air, and aquatic environments. The District and its contractors will be required to comply with DPR regulations.

Local Regulations

Basin Plan and TMDL

In October 2008, the Regional Water Quality Control Board (RWQCB adopted a TMDL for mercury in the Guadalupe River Watershed in its San Francisco Bay Basin Water Quality Control Plan (RWQCB, 2008). TMDLs are actions required by the RWQCB to restore clean water. Section 303(d) of the federal Clean Water Act requires that states identify water bodies that do not meet water quality standards. TMDLs are established to examine these water quality problems, identify sources of pollutants, and specify actions to address the water quality issues.

TMDLs define how much of a pollutant a water body can tolerate and meet water quality standards. TMDLs account for all the sources of a pollutant, including discharges from wastewater treatment facilities; runoff from homes, agriculture, and streets or highways; "toxic hot spots;" and deposits from the air. In addition to accounting for past and current activities, TMDLs may consider projected growth that could increase pollutant levels.

The TMDL for Alamitos Creek is 0.2 milligrams of mercury per kilogram suspended sediment (dry weight). The TMDL for Almaden Lake is 1.5 nanograms total methylmercury per liter water (seasonal maximum, hypolimnion[3]). In addition, the Basin Plan established a load and wasteload allocation for methylmercury production in Almaden Lake of 1.5 nanograms total methylmercury per liter of water (seasonal maximum, hypolimnion). The Basin Plan and the TMDL apply to this Project because they are the regulatory drivers requiring site remediation.

Certified Unified Program Agency

In 1993, Senate Bill (SB) 1082 was passed by the State Legislature to streamline the permitting process for those businesses that use, store, or manufacture hazardous materials. The passage of SB 1082 provided for the designation of a CUPA that would be responsible for the permitting process and collection of fees. The CUPA would be responsible for implementing at the local level the Unified Program, which serves to consolidate, coordinate, and make consistent the administrative requirements, permits, inspections, and enforcement activities for the following environmental and emergency management programs:

- Hazardous Materials Release Response Plans and Inventories (Hazardous Materials Business Plans)
- California Accidental Release Prevention (CalARP) Program
- Underground Storage Tank Program
- Aboveground Petroleum Storage Act Requirements for Spill Prevention, Control and Countermeasure (SPCC) Plans
- Hazardous Waste Generator and On-Site Hazardous Waste Treatment (tiered permitting) Programs
- California Uniform Fire Code: Hazardous Material Management Plans and Hazardous Material Inventory Statements

For Santa Clara County and the City of San José, the Department of Environmental Health (DEH) administers hazardous materials business plans, hazardous waste, tiered permits, CalARP, and underground and above ground storage tanks (Unidocs, 2018). The San José Fire Department administers the California Fire Code, hazardous materials storage, and

[3] The lower layer of water in a stratified lake, typically cooler than the water above and relatively stagnant.

toxic gases. Contractors will be required to comply with the regulatory programs overseen by the CUPA.

Control and Oversight of Pesticide Use (District Document Q751D02)

The District established policies and procedures for pesticide approval, purchasing, acquisition, handling, use, storage, transportation, disposal, and reporting in a manner consistent with all Districts' permits, the California Environmental Quality Act (CEQA), and the California DPR (SCVWD, 2017). These policies and procedures do not replace the need for regulatory permits and only apply to District work activities once these permits are in place.

These policies and procedures apply to all District-owned or operated facilities and staff, contractors, permittees, and suppliers. The District goal is to minimize the environmental risk and exposure resulting from its pesticide use by employing Best Management Practices (BMPs) and alternatives to their use to the maximum extent practicable and to facilitate the safe use of pesticide by qualified staff and contractors. Contractors will be required to comply with the regulatory programs overseen by the District.

City of San José General Plan

A General Plan is a basic planning document that, alongside the zoning code, governs development in a city or county. The state requires each city and county to adopt a General Plan with seven mandatory elements: land use, open space, circulation, housing, noise, conservation, and safety, along with any number of optional elements as appropriate. The Project would be subject to local plans and policies of the areas in which they are located. The City of San José General Plan includes the following policy related to hazards and hazardous materials:

> **Policy MS-6.5:** Reduce the amount of waste disposed in landfills through waste prevention, reuse, and recycling of materials at venues, facilities, and special events.
>
> **Policy MS-8.7:** Manage wastes locally to the greatest extent feasible to minimize the export of wastes and pollution to our and other communities.
>
> **Policy MS-20.4:** Work with local, regional and state agencies to protect and enhance the watershed, including the protection of surface water and ground water supplies from pollution and degradation.
>
> **Policy ER-8.1:** Manage stormwater runoff in compliance with the City's Post-Construction Urban Runoff (6-29) and Hydromodification Management (8-14) Policies.
>
> **Policy EC-6.1:** Require all users and producers of hazardous materials and wastes to clearly identify and inventory the hazardous materials that they store, use or transport in conformance with local, state and federal laws, regulations and guidelines.
>
> **Policy EC-6.2:** Require proper storage and use of hazardous materials and wastes to prevent leakage, potential explosions, fires, or the escape of harmful gases, and to prevent individually innocuous materials from combining to form hazardous substances, especially at the time of disposal by businesses and residences. Require proper disposal of hazardous materials and wastes at licensed facilities.

Policy EC 6.10: Promote source reduction and recycling as alternatives to hazardous materials land disposal whenever feasible.

Policy EC-7.9: Ensure coordination with the County of Santa Clara Department of Environmental Health, Regional Water Quality Control Board, Department of Toxic Substances Control or other applicable regulatory agencies, as appropriate, on projects with contaminated soil and/or groundwater or where historical or active regulatory oversight exists.

Policy EC-7.10: Require review and approval of grading, erosion control and dust control plans prior to issuance of a grading permit by the Director of Public Works on sites with known soil contamination. Construction operations shall be conducted to limit the creation and dispersion of dust and sediment runoff.

3.J.3 Impacts and Mitigation Measures

The Project's impacts were assessed using the CEQA Guidelines Appendix G Checklist. The following sections discuss the key issue areas identified in the CEQA Guidelines with respect to the Project's hazard and hazardous material impacts.

Significance Criteria

Implementation of the Project would have a significant impact relative to hazards or hazardous materials if it were to:

- Create a significant hazard to the public or the environment through the routine transport, use, disposal, or accidental release of hazardous materials during the use of equipment.
- Create a significant hazard to the public or the environment through the routine transport, use, disposal, or accidental release of contaminated soil during construction.
- Create a significant hazard to the public or the environment through the routine transport, use, disposal, or accidental release of pesticides during operations.
- Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school.
- 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.
- 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.
- Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan.

Approach to Analysis

Avoidance and Minimization Measures Incorporated into the Project

Avoidance and minimization measures are those parameters that have been built into the design of the Project and are committed to as part of Project implementation. These measures are included in Chapter 2, Project Description, Section 2.E.1.

The following avoidance and minimization measures are contained in the District's Best Management Practices (BMP) Handbook (SCVWD, 2014), and have been incorporated into the Project. These measures would generally help to reduce the intensity of impacts associated with the Project, in accordance with District policy. Note that the District uses the term "pesticides" to refer to any herbicide, insecticide, rodenticide, algaecide, fungicide, or any combination of substances intended to prevent, destroy, or repel any pest. The BMPs draw from and refer to the District's Document Q751D02, Control and Oversight of Pesticide Use, discussed above in the Regulatory Setting.

HM-1. Comply with All Pesticide Application Restrictions and Policies.

HM-2. Minimize Use of Pesticides.

HM-3. Post Areas Where Pesticides will be Used.

HM-4. Comply with All Pesticide Usage Requirements.

HM-5. Comply with Restrictions on Herbicide Use in Upland Areas.

HM-6. Comply with Restrictions on Herbicide Use in Aquatic Areas.

HM-7: Restrict Vehicle and Equipment Cleaning to Appropriate Locations.

HM-8. Ensure Proper Vehicle and Equipment Fueling and Maintenance.

HM-9. Ensure Proper Hazardous Materials Management.

HM-11. Ensure Worker Safety in Areas with High Mercury Levels.

No Impact Significance Determinations

Based on the nature of the Project, there would be no impact related to the following criterion:

Be located within ¼ mile of a school. There are no schools within ¼ mile of the project area and no impact would occur (see Sections 3.J.1, Environmental Setting, Proximity to Schools).

Be located within 2 miles of an airport. There are no airports within 2 miles of the project area and no impact would occur (see Sections 3.J.1, Environmental Setting, Proximity to Airports).

Impact Summary

Table 3.J-3 provides a summary of hazards and hazardous materials impacts by implementation phase (construction and operations). Table 3.J-3 provides a summary of applicable mitigation measures by implementation phase.

TABLE 3.J-3
SUMMARY OF HAZARDS AND HAZARDOUS MATERIALS IMPACTS

Impact Statement	Construction	Operation
Impact 3.J-1: The Project would not create a significant hazard to the public or the environment through the routine transport, use, disposal, or accidental release of hazardous materials during the use of equipment.	LS	LS
Impact 3.J-2: The Project would not create a significant hazard to the public or the environment through the routine transport, use, disposal, or accidental release of contaminated soil.	LS	LS
Impact 3.J-3: The Project would not create a significant hazard to the public or the environment through the routine transport, use, disposal, or accidental release of pesticide.	NI	LS
Impact 3.J-4: The Project would be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 or other listings, but would not create a significant hazard to the public or the environment.	LS	LS
Impact 3.J-5: The Project would not impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan.	LS	LS

NI = No impact
LS = Less than significant
LSM = Less than significant with mitigation

Impacts and Mitigation Measures

Impact 3.J-1: The Project would not create a significant hazard to the public or the environment through the routine transport, use, disposal, or accidental release of hazardous materials during the use of equipment. (Less than Significant)

Construction and Operations Impacts

Construction of the Project would require the use of earth moving equipment, vehicles, and other fuel-powered equipment. Project operations would require the use of vehicles and equipment. Petroleum products, such as gasoline, diesel fuel, lubricants, and cleaning solvents would be utilized to fuel and maintain construction vehicles and equipment. The routine use or reasonably foreseeable upset and accident conditions could result in the release of small quantities of hazardous materials, which could adversely affect the public or the environment.

Construction and operations activities would be required to comply with numerous hazardous materials and stormwater regulations designed to ensure that hazardous materials would be transported, used, stored, and disposed of in a safe manner to protect worker safety, and to reduce the potential for a release of construction-related fuels or other hazardous materials to the environment (see Section 3.J.2, Regulatory Setting). The Hazardous Materials Business Plan required by the Business Plan Act would require that hazardous materials used for construction be stored in appropriate containers, with secondary containment to contain a potential release. The California Fire Code would require measures for the safe storage and handling of hazardous materials. As discussed in Section 3.K, Hydrology and Water Quality, construction contractors would be required to prepare a Stormwater Pollution Prevention Plan (SWPPP) for construction activities according to the National Pollutant

Discharge Elimination System (NPDES) Construction General Permit requirements. The SWPPP would list the hazardous materials (including petroleum products) proposed for use during construction and describe spill prevention measures, equipment inspections, equipment and fuel storage, and protocols for responding immediately to spills.

As discussed in Chapter 2, Project Description, the District has incorporated Avoidance and Minimization Measures into the Project, provided in the District's BMP Handbook. The measures relevant to hazardous materials are listed above in the section titled *Avoidance and Minimization Measures Incorporated into the Project*, and include District BMPs HM-5 through HM-9, and HM-11. The listed specific measures minimize the impact of hazardous materials releases by ensuring that herbicide use is restricted, limiting the use of hazardous materials for the maintenance and cleaning of vehicles and equipment to appropriate areas, ensuring the proper management of hazardous materials, and protecting workers from elevated mercury concentrations.

Therefore, compliance with existing regulations and implementation of the Avoidance and Minimization Measures would ensure that the Project would not create a significant hazard to the public or the environment through the routine transport, use, disposal, or accidental release of hazardous materials, resulting in a **less than significant** impact. No mitigation measures would be required.

Mitigation Measures

None required.

Impact 3.J-2: The Project would not create a significant hazard to the public or the environment through the routine transport, use, disposal, or accidental release of contaminated soil. (Less than Significant)

Construction Impacts

As described in Chapter 2, Project Description, the Project would rework the bottom of the lake to eliminate pits from the historical quarry. The lake bottom would then be capped with imported clay fill material, sealing sediments contaminated with mercury at the bottom of the lake and preventing its entry into the food chain. As discussed above in the Environmental Setting, the analytical results for mercury in some samples exceeded the TTLC for mercury, indicating that if these sediments are excavated and sent for offsite disposal, the sediments would have to be sent to a Class I landfill permitted to accept hazardous waste. The District anticipates that cut volumes classified as hazardous waste would be sent for offsite disposal at a landfill permitted to accept Class I hazardous waste in Kettleman, CA or Utah.

The sediment management activities proposed under the Project would be required to comply with various hazardous materials regulations designed to ensure that hazardous waste, including contaminated sediment, would be excavated, transported, and disposed of in a safe manner to protect worker safety, and to reduce the potential for a release of hazardous materials to the environment (see Section 3.J.2, Regulatory Setting). Cal-OSHA would require that construction workers be trained to properly handle hazardous waste. RCRA and HWCA would regulate the management and disposal of hazardous waste. The DOT Hazardous Materials Transportation Act and the Federal Motor Carrier Safety Administration would regulate the transportation of hazardous waste.

In addition and as discussed in Chapter 2, Project Description, the District has incorporated Avoidance and Minimization Measures into the Project, provided in the District's BMP Handbook. The measures relevant to hazardous materials are listed above in the section titled Avoidance and Minimization Measures Incorporated into the Project, and include District BMPs HM-9 and HM-11. District BMP HM-9, Ensure Proper Hazardous Materials Management, would include worker training, minimizing chemical contact with precipitation, ensuring hazardous materials will not contact soil or be allowed to enter surface waters or the storm drainage system, and covering hazardous waste disposal containers when not in use. District BMP HM-11, Ensure Worker Safety in Areas with High Mercury Levels, would ensure worker safety is protected in areas with elevated mercury concentrations in exposed surfaces by requiring personal protective equipment during project construction to maintain exposure below levels established by Cal/OSHA. The listed specific measures would minimize the impact of hazardous materials releases by ensuring safe containment and handling to prevent accidental release or exposure, providing appropriate worker training, and requiring personal protective equipment during project construction.

The anticipated volumes of cut materials would be up to approximately 25,000 cubic yards. The process of reshaping the lake bottom, removing some of the contaminated sediments, and transporting the contaminated sediments could expose workers or the environment to contaminated sediments during construction. Compliance with relevant hazardous materials regulations and the implementation of District BMPs would reduce exposure of workers and the environment to mercury laden sediments, as summarized below.

To comply with regulations and the District's Avoidance and Minimization Measures (BMPs HM-9 and HM-11), and as required under OSHA and 29 CFR 1910.120, the District and/or its contractor(s) would be required to prepare and implement a site-specific Health and Safety Plan to protect construction workers and the public during all excavation, grading, soil management, and disposal activities. This plan(s) would be submitted to the District for review prior to commencement of construction. The Health and Safety Plan would include, but is not limited to, the following elements:

- Designation of a trained, experienced site safety and health supervisor who has the responsibility and authority to develop and implement the site Health and Safety Plan
- A summary of all potential risks to construction workers and maximum exposure limits for all known and reasonably foreseeable site chemicals
- Specified personal protective equipment and decontamination procedures, if needed
- Emergency procedures, including route to the nearest hospital

- Procedures to be followed in the event that evidence of potential soil or sediment contamination (such as soil staining, noxious odors, debris or buried storage containers) is encountered. These procedures shall be in accordance with hazardous waste operations regulations and specifically include, but are not limited to, the following: immediately stopping work in the vicinity of the unknown hazardous materials release, notifying the District, and retaining a qualified environmental firm to perform sampling and remediation.

To comply with regulations and the District's Avoidance and Minimization Measures (BMPs HM-9 and HM-11), and as required by RCRA (the chemical concentrations exceed hazardous waste criteria), the District would require its contractor to develop and implement a site-specific Soil Management Plan that would include, but not be limited to, the following elements:

- Contract specifications mandating full compliance with all applicable local, state, and federal regulations related to the identification, transportation, and disposal of hazardous materials, including those encountered in excavated sediment.
- Identification of the lateral extent and depth of the materials to be removed
- Protocols for the laboratory analytical testing of soil for waste profiling (required by waste disposal facilities as part of their waste acceptance criteria)
- Identification of the licensed disposal facility permitted to accept the waste, including written documentation that the disposal facility will accept the waste
- Submittal of this plan to the District for review prior to commencement of construction.

Compliance with regulations and the District's Avoidance and Minimization Measures described above would ensure safe containment and handling to prevent accidental release or exposure, require personal protective equipment for workers during Project construction, develop and implement a Health and Safety Plan and a Soil Management Plan, and provide appropriate worker training. This impact is considered **less than significant**.

Operations Impacts

Upon completion of the Project, the sediment at the bottom of the lake that contains mercury would be sealed under a clay fill material cap. The public and the environment would no longer be exposed to those sediments. The Almaden Valley Pipeline would provide imported water as a water source for water management in Almaden Lake. The imported water quality would generally be better than creek water with less mercury being reintroduced to Almaden Lake (SCVWD, 2018). Water quality and occasional sediment removal in the lake would be carefully managed as discussed in Section 3.K, Hydrology and Water Quality. This impact is considered **less than significant**.

Future maintenance may include bank stabilization efforts as needed and sediment removal, which may occur every ten years. The restored Alamitos Creek channel would receive mercury from upstream sources. Future maintenance work would incorporate regulatory requirement and Avoidance and Minimization Measures such as BMPs HM-9 and HM-11 as discussed above. With implementation of these measures, hazards to the public and the environment through the transport, use, disposal, or release of contaminated soil would be **less than significant**.

Mitigation Measures

None required.

Impact 3.J-3: The Project would not create a significant hazard to the public or the environment through the routine transport, use, disposal, or accidental release of pesticides during operations. (Less than Significant)

Construction Impacts

Pesticides would not be used during construction activities; therefore, **no impact** would occur.

Operations Impacts

Upon completion of Project construction, the District would manage vegetation growth on the top of the levee and invasive plants on the island with pesticides. The inappropriate use of pesticides could result in adverse effects to the workers and the environment. Herbicides currently used by the District include Glyphosate, Imazapyr, Isoxaben, Triclopyr, Clopyralid, and Aminopyralid depending on the vegetation control need. Live trapping is conducted for rodent control at levees if needed; rodenticides are not used by the District.

The use of pesticides would be required to comply with pesticide regulations designed to ensure that the pesticides would be applied in a safe manner to protect the safety of the workers and the public, and in a manner appropriate for the environment. The use of pesticides, and worker and environmental safety are specifically regulated at the federal level (FIFRA) and state level (DPR and 3 CCR Food and Agriculture, Division 6. Pesticides and Pest Control Operations). At the local level, the District regulates its use of pesticides through District Document Q751D02, Control and Oversight of Pesticide Use. In addition, Cal-OSHA would require that workers applying the pesticides be trained to properly handle and apply the pesticides. RCRA, HWCA, and the Business Plan Act would regulate the use, storage, and transportation of hazardous materials, including pesticides.

As discussed in Chapter 2, Project Description, the District has incorporated Avoidance and Minimization Measures into the Project, provided in the District's BMP Handbook. The measures relevant to hazardous materials are listed above in the section titled Avoidance and Minimization Measures Incorporated into the Project, and include District BMPs HM-1 through HM-6, and HM-9. These measures are consistent with the above-listed federal, state, and local regulations. The listed specific measures would further reduce the potential for and minimize the impact of hazardous materials releases through restrictions on upland pesticide application within 72 hours of predicted significant rainfall, utilizing only pesticides registered for aquatic use in aquatic areas, seasonal limitations on aquatic pesticide use, ensuring proper handling of pesticides and protecting the quality of water resources by all reasonable means (as specified in District BMP HM-9).

Therefore, with compliance of existing regulations and implementation of the Avoidance and Minimization Measures, the impacts related to the use of pesticides is **less than significant**. No mitigation measures would be required.

Mitigation Measures

None required.

Impact 3.J-4: The Project is located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 or other listings, but would not create a significant hazard to the public or the environment. (Less than Significant)

Construction and Operations Impacts

As discussed above in the Environmental Setting, Almaden Lake, along with the Guadalupe River Watershed, is listed by Santa Clara County and the RWQCB for mercury contamination. Santa Clara County issued a fish consumption advisory and the RWQCB has established a TMDL for the entire watershed. The current configuration of the lake and creek continues to result in the generation of methylmercury that enters the creek waters and the food chain, which adversely affects the environment.

The purpose of the Project is to address the mercury contamination and eliminate Almaden Lake as a source of methylmercury in the environment. With the completion of the Project, the mercury-containing sediments would be either sealed beneath a clay cap at the bottom of the lake or transported to an offsite disposal facility permitted to accept the waste. The District would maintain the levees separating the lake from the creek, thus protecting the cap that seals the bottom of the lake and preventing mercury from entering the environment. Water within the restored creek would continue to include mercury, as occurs under current conditions. Therefore, implementation and completion of the Project would not result in a significant hazard to the public, and the impact would be **less than significant**. No mitigation measures would be required.

Mitigation Measures

None required.

Impact 3.J-5: The Project would not impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan. (Less than Significant)

Construction Impacts

Construction of the Project would require the use of earth moving equipment, trucks for equipment and the movement of soil, and vehicles for the transport of workers. The vast majority of Project construction activities would not be located on public roads but would require construction access and haul routes using public roads, including Winfield Boulevard, Almaden Expressway, and Coleman Road. The use of public roads could impair or physically interfere with emergency response actions, which could adversely affect the public.

While construction would occur along Crossview Drive and could occur along Almaden Expressway, closures would be limited to one lane at a time, and therefore would not interfere with emergency vehicle movement. No other construction activities would occur on public roads. Therefore, there would be no road closures that could affect emergency actions using public roads. Although construction vehicles would use public roads to and from the Project site, no complete road closures would occur as a result of their use. The three adjacent roads that would experience use by construction vehicles: Winfield Boulevard, Almaden Expressway, and Coleman Road, all have at least two lanes in each direction. Construction vehicles would have room to pull over and let emergency vehicles pass, and emergency vehicles would have room to go around construction vehicles. Therefore, the roads would have sufficient space for emergency vehicles and the impact would be **less than significant**.

Operations Impacts

Upon completion of the Project, the District would manage the levee and vegetation growth. The number of District vehicles entering and exiting the Project site would not substantially increase in comparison to existing conditions. For additional discussion of traffic-related impacts during operation, refer to Section 3.P, Transportation. All relevant roads would have sufficient space for emergency vehicles and the impact would be **less than significant**. No mitigation measures would be required.

Mitigation Measures

None required.

3.J.4 References

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3.K Hydrology and Water Quality

This section describes the environmental and regulatory setting of the Project area with respect to surface and groundwater hydrology and water quality conditions that could be affected by construction, operation, and maintenance of the Project. District best management practices (BMPs) and mitigation measures to reduce significant impacts are also identified, as necessary.

3.K.1 Environmental Setting

Regional Setting

The Project is located within the Guadalupe River Watershed, which extends from the headwaters in the eastern Santa Cruz Mountains near the summit of Loma Prieta in unincorporated Santa Clara County, to the discharge point of the Guadalupe River at Alviso Slough where waters continue to flow into the Lower South San Francisco Bay. The Guadalupe River begins on the valley floor at the confluence of Alamitos Creek and Guadalupe Creek. The watershed drains approximately 171 square miles and includes portions of unincorporated Santa Clara County, and the towns and cities of Los Gatos, San José, Santa Clara, Monte Sereno, and Campbell. The upper watershed is heavily forested with pockets of residential development, with urban development increasing in density on the valley floor.

Groundwater

The Santa Clara Valley Basin extends from southern San José north into Alameda and San Mateo Counties. It is in a structural trough that is bounded by the Santa Cruz Mountains to the west and the Diablo Range to the east. It is divided into four subbasins, with the Santa Clara Subbasin underlying the Guadalupe River Watershed. The Santa Clara Subbasin is approximately 22 miles long and ranges from about 15 miles wide in the north to about 0.05 mile in the south where two mountain ranges converge. The Santa Clara Subbasin extends from the southern edge of the San Francisco Bay southward to the groundwater divide near Morgan Hill. Groundwater in the Santa Clara Subbasin generally flows in the direction of ground surface topography, towards the Subbasin interior and northerly towards the San Francisco Bay (SCVWD, 2010). The Subbasin is subdivided into two management areas – the Santa Clara Plain and the Coyote Valley Recharge Area. The Santa Clara Plain is further divided into confined and recharge areas; the confined area underlies the valley floor in the northern and central portions of the Subbasin, and the recharge areas underlie higher elevation, alluvial fan areas along the edges of the Subbasin (SCVWD, 2012). Sources of recharge include deep percolation of precipitation, leakage from streams, subsurface inflow from surrounding hills, and recharge operations managed by the District (SCVWD, 2010).

Climate

The Project region has a Mediterranean climate, with warm dry summers and mild wet winters. Average annual precipitation is approximately 16 inches, with the majority of the rain occurring in the winter months. December is generally the coolest month with an average of 51.1 degrees Fahrenheit (F), while July is the warmest month with an average of 69.9 degrees F (NOAA, 2016a). December is generally the wettest month with an average of 2.81 inches of rainfall, while July and August are the driest months with an average of 0.00 inches of rainfall (NOAA, 2019).

Project Hydrologic Setting

Almaden Lake Watershed

Almaden Lake is located at the downstream end of the seven mile long Alamitos Creek and its tributaries, including Calero Creek, which receives flow from Almaden and Calero Reservoirs. Alamitos Creek flows into the lake and joins Guadalupe Creek, which receives flows from Guadalupe Reservoir, just downstream of the lake to form the main stem of the Guadalupe River. Guadalupe River flows north through the City of San José and empties into the South San Francisco Bay at Alviso Slough.

Both Almaden and Calero Reservoirs are managed by the District. Almaden Reservoir captures rainfall runoff from a 12 square mile watershed and Calero Reservoir captures rainfall runoff and receives imported water (including from Almaden Reservoir). Both reservoirs provide water used for groundwater recharge. Almaden and Guadalupe Reservoirs are impacted by mercury mining operations that began in the 1840s and ended in the 1970s. Calero Reservoir receives water transferred from Almaden Reservoir, and as a result it is secondarily elevated in mercury; the watershed draining to Calero is not itself high in mercury (SCVWD, 2015; 2016a).

The District operates the Alamitos Flashboard Dam in the Guadalupe River adjacent to the Los Alamitos Percolation Pond. The flashboard dam allows the District to divert water to the percolation Pond, and when installed, increases the elevation of Almaden Lake.

Almaden Lake

Almaden Lake was formed as a result of inundation of a gravel-mining pit adjacent to Alamitos Creek when the levee separating the creek and the quarry breached circa 1960. Almaden Lake is currently replenished by Alamitos Creek flows, direct precipitation, and limited stormwater runoff from adjacent areas. Almaden Lake is approximately 32 acres in area, with a maximum depth of 43 feet (SCVWD, 2015). The elevation of the lake surface is raised approximately 5 feet when flashboards are installed at the Alamitos Flashboard Dam downstream. Water flowing from Almaden Lake into the Guadalupe River is primarily surface water, which is warmer than lake bottom temperatures during the summer months.

Groundwater

Almaden Lake and its watershed are situated at the southern boundary of the Santa Clara Plain Recharge Area, which includes alluvial fan and fluvial deposits where high lateral and vertical permeability allow surface water to infiltrate into the aquifers. Percolation into the recharge areas replenishes the unconfined portions of the recharge area and deep aquifers in the confined area via subsurface flow. To assist with natural infiltration, the District manages the Guadalupe Recharge System (and others) such that water released from Almaden, Guadalupe, and Calero Reservoirs provides in-stream recharge and can be diverted to the Alamitos and Guadalupe groundwater percolation ponds (SCVWD, 2012). Almaden Lake (a former quarry) is not a groundwater recharge location because the lake bottom is not conducive to recharge, and is not a part of District operations.

Current groundwater level measurements were not available within the Project site, but are available in the general vicinity of the Project. Based on data maintained by the California Department of Water Resources (DWR, 2019), groundwater levels in the Project vicinity range from approximately 5 to 66 feet below ground surface (bgs), based on groundwater monitoring wells located up to approximately one mile from the Project site, including at Pioneer High School (0.4 mi northwest of the Project site), at the intersection of Lionsville Lane and Sunflower Lane (0.7 mi west of the Project site), and at the intersection of Callahan Avenue and Coffey Court (1.1 mi east of the Project site). The shallowest groundwater levels were at the Pioneer High School monitoring well, at a ground surface elevation approximately 15 feet higher than the Almaden Lake surface, where groundwater depths ranged from 5.5 to 44 feet bgs. The shallowest groundwater levels observed at the other two sites were 16 and 12 feet, in April, 2017. Considering these levels, and the existing water levels of Almaden Lake, it is anticipated that shallow groundwater is likely to occur within the Project area. This is consistent with prior District estimates for the Project area, which indicate that the depth to shallow aquifer is 5 to 15 feet bgs, while the depth to the principal aquifer is 100 feet bgs or less (SCVWD, 2010).

Flooding

The Federal Emergency Management Agency (FEMA) delineates regional flooding hazard areas in Santa Clara County as part of the National Flood Insurance Program. The FEMA 100-year flood hazard zone (i.e., areas that, statistically, have a 1 percent chance of flooding in any given year) in the Project vicinity is shown in **Figure 3.K-1**. The entire Almaden Lake area, portions of the shoreline on the north, west, and east sides of Almaden Lake, the riparian area and shoreline at the Alamitos Creek inlet, the Alamitos Creek outlet, and Guadalupe River and its shorelines are within the 100-year flood hazard zone.

Modifications to control flooding in the Alamitos Creek Watershed have occurred since about 1866, which affect sediment transport and locations where mercury-laden sediment accumulates (RWQCB – San Francisco Bay, 2006). In the late 1970s, levees were built along Alamitos Creek from the Harry Road bridge to the confluence with Almaden Lake. Stream maintenance measures in the vicinity of the Project have included the routine removal of sediment from the drop structures and flood control structures in various parts of the Guadalupe River Watershed, and bank protection projects to prevent erosion.

SOURCE: FEMA, 2014

Almaden Lake Improvement Project . 130679

Figure 3.K-1
100-Year Flood Zone in the Project Vicinity

Dam or Levee Failures

Dam failure can occur as a result of overtopping caused by floods that exceed dam capacity; deliberate acts of sabotage; structural failure; foundational movement; materials settlement or cracking; piping and internal erosion; and inadequate maintenance and upkeep of a dam (Santa Clara County, 2011). Dams located upstream of the Project include Calero Dam on the Calero Reservoir, Almaden Dam on the Almaden Reservoir, and Guadalupe Dam on the Guadalupe Reservoir. All three dams are regulated by the design and operational requirements established by the California Division of Safety of Dams (DSOD) and are administered by the District. These requirements limit the amount of water that can be held below dam capacity until seismic issues are addressed at each dam. These operational constraints minimize the risk of flooding associated from dam failure, under existing conditions.

California Water Code Section 6000, et seq. and Title 23 of the California Code of Regulations (CCR) § 301, et seq. establish the authority and responsibility of the DSOD, including periodic safety inspection of dams, completion of studies that predict the flood zones created by sudden dam failure, including a program for emergency warning and evacuation prepared by the District. The DSOD requires the determination of a dam inundation area and submission of dam inundation maps, which show the areas downstream of a dam that would be inundated or impacted by the failure of the dam and floodwaters. The Project Area is at risk of inundation due to dam failure of Almaden Dam and/or Calero Dam (Santa Clara County, 1973; SCVWD, 2014).

There are no levees on the Project site. The only flood control levees located in the vicinity of the Project site separate the Guadalupe River from the Los Alamitos Percolation Pond, immediately north of the Project area, and along Alamitos Creek from the Harry Road bridge to the confluence with Almaden Lake, as described previously.

Tsunamis and Seiche

A tsunami is a sea wave of local or distant origin that results from large-scale seafloor displacements associated with large earthquakes, major submarine slides, or exploding volcanic islands (USGS, 2016). In 2009, the California Geological Survey, California Emergency Management Agency (CalEMA), and the Tsunami Research Center at the University of Southern California completed the State’s official tsunami inundation maps. Based on this mapping, the Project site is located outside of potential tsunami inundation (CalEMA et al., 2009).

A seiche is caused by oscillation of the surface of a large enclosed or semi-enclosed body of water such as the San Francisco Bay due to an earthquake or large wind event. Seiches can result in long-period waves that cause run-up or overtopping of adjacent landmasses, similar to tsunami runup. Almaden Lake is sufficiently sized that a seiche has the potential to occur in the event of an earthquake.

Almaden Lake Water Quality

District's Existing Water Quality Monitoring Project

As a result of the 2008 adoption of the Mercury Total Maximum Daily Load (TMDL) in the Guadalupe River Watershed, the District is required to produce biennial progress reports that describe the water quality results and the efficacy of methods implemented to reduce methylmercury concentrations in Guadalupe Reservoir, Almaden Reservoir, Calero Reservoir, and Almaden Lake. In addition, nutrients, algae, and bacteria is monitored. Select results relevant to the Project are presented below.

Nutrients, Algae, and Bacteria

Under existing conditions, Almaden Lake experiences eutrophication due to high nutrient levels, limited circulation, and elevated summer water temperatures. With respect to nutrients, nitrates and phosphates can be delivered from animal feces (particularly birds), contributing areas of the upstream watershed, urban runoff, and over application of fertilizers in nearby landscaping and neighborhoods. Nitrogen fixation from cyanobacteria blooms represents an additional source of nitrogen to the system, while atmospheric deposition and geologic sources can support phosphorus release. Upstream land uses, including a golf course and nursery, have the potential to contribute nutrients to the watershed, including Almaden Lake, during periods of runoff. Large populations of waterbirds, including Canada geese, gulls, mallards, egrets, herons, and others also have the potential to contribute nutrients, as well as bacteria, through their fecal matter. Under favorable conditions, algae grow rapidly. However, algal cells are short lived, resulting in high levels of senescent (dead) algal material that sinks to the bottom of the water column. In lake bottom waters and lake bottom surficial sediments, bacteria consume this material and oxygen, resulting in low dissolved oxygen concentrations which are conducive to the mercury methylation processes described below.

Monitoring of ammonia, nitrate, total phosphorous, and sulfate has been conducted in Almaden Lake since 2005. Results of those efforts indicate that (SCVWD, 2017)):

- Total phosphorous concentrations were significantly higher in Almaden Lake than in the reservoirs
- Nitrate concentrations average 2.6 mg/L
- Ammonia mean concentrations was 2.3 mg/L

When high nutrients, high temperatures, and low circulation co-occur, significant algal bloom events can develop. Prior studies of Almaden Lake have identified large bloom events in Almaden Lake during the spring and summer months (Horizon, 2013), including cyanobacteria blooms as recently as August/September of 2018.

Bacteria concentrations have been historically high in Almaden Lake, and have resulted in the closure of the lake to swimming and other water contact activities. Samples from surface layers of the lake have indicated strong presence of bacteria, including coliform and E. coli

(Horizon, 2013). Monitoring results from 2011 and 2012 indicated bacteria concentrations ranged from:

- Less than 5 to 4,610 MPN/100 mL (average 392 MPN/100 mL) for E. coli;
- 477 MPN/100 mL to too numerous to count (average 2,740 MPN/100 mL) for total coliform

These concentrations are generally high, with San Francisco Regional Water Quality Control Board (RWQCB) steady state objectives for E. coli at 126 MPN/100 mL, and for total coliform at less than 240 MPN/mL on average and no sample exceeding 10,000 MPN/mL.

Mercury

Mercury is a toxic heavy metal that is found naturally in certain geologic formations. In California, active mercury mines were founded starting during the gold rush era. A total of 131 California reservoirs recently sampled are identified as mercury-impaired (https://www.waterboards.ca.gov/water_issues/programs/mercury/reservoirs/).

Approximately 38 million kilograms of mercury were produced in the New Almaden Mining District, located in the Guadalupe River Watershed, upstream of Almaden Lake. Roughly 70 percent of this production occurred prior to 1875, and about 80 percent before 1935. Prior to the mining era, there were no lakes or other large natural impoundments in the Guadalupe River Watershed (RWQCB, 2006). Prior to construction of the Guadalupe and Almaden Reservoirs in 1935, roasted mine wastes, called calcines, and other mine wastes were disposed in or near the creeks so that the materials would be transported downstream by winter flows. Calcines and other mine wastes are still present in and along the banks of Alamitos Creek, and provide an active source of mercury to the watershed (Tetra Tech 2005). However, the District has made an effort to clean up calcines in Alamitos Creek. Other landowners in the former mining district (County of Santa Clara, Midpeninsula Regional Open Space District and Guadalupe Rubbish Company) have also performed remediation of mining wastes. In addition to the legacy mercury mines and debris in the watershed, additional mercury sources include natural mineral springs and native soils, urban runoff, and atmospheric deposition.

Mercury in South San Francisco Bay sediments is primarily a result of mercury released from historical Coast Range mercury mines (primarily those upstream of Almaden Lake [McCord, 2016]). Mining waste has been identified as the likely source of mercury in the bottom sediments of both the Almaden and Guadalupe reservoirs. In addition, particulate and dissolved mercury loads continue to be transported to Almaden Lake during each wet season.

New Almaden Mine is of significant concern due to high concentrations of mercury-laden waste material and high rates of methylmercury production and bioaccumulation that occur in downstream impoundments. Almaden Lake maintains very high levels of mercury, caused by entrapment of mercury-laden sediment in the lake and to a lesser extent urban runoff. These sediments can be carried downstream into Guadalupe River and San Francisco Bay.

Substantial amounts of mercury are carried along the Guadalupe River, entrained in sediments. A 2010 study of mercury along the watershed measured sediment-bound mercury transport rates along the Guadalupe River of 0.04 to 6.7 kg per day, varying seasonally. On average, at least 96% of all mercury transport through the Guadalupe River was found to be associated with particles (McKee et al., Hunt, 2011).

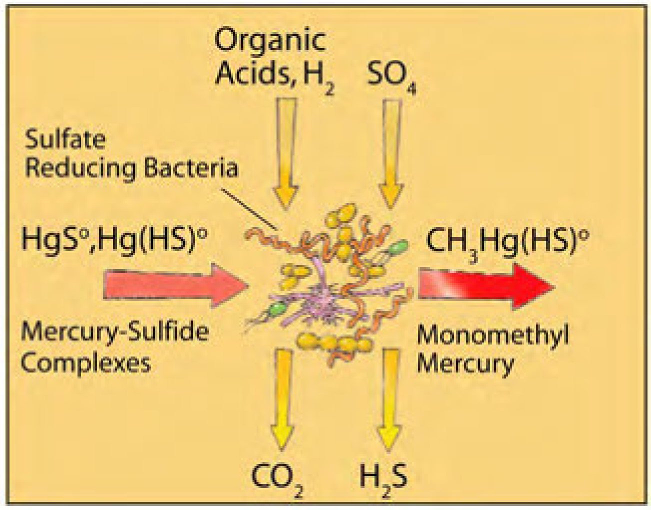
Methylmercury

The primary environmental concern with mercury is exposure to methylmercury (MeHg). Exposure to MeHg comes predominately from eating fish and shellfish that have accumulated it through their food web. Microscopic algae can concentrate dissolved MeHg approximately 100,000-fold, making this a critical first step in the biomagnification process (Watras et al., 1994). In turn, human consumption of contaminated fish and wildlife poses significant health risks (U.S. EPA, 2009). MeHg is linked to developmental problems in fetuses and children and to nervous system effects in adults (U.S. EPA, 2001). Similar developmental and nervous system effects have been observed in wildlife globally (Weiner et al., 2003) and in Bay Area birds (Ackerman et al., 2008).

Methylmercury Production and Cycling

Methylmercury is produced under specific conditions that commonly occur in Almaden Lake. During the summer, the lake tends to stratify – that is, upper layers become warm, heated by the sun and warm air, while deep layers of the lake remain cool. During periods of stratification, vertical mixing is inhibited, stopping the transport of oxygen to deeper water. Particulate organic matter produced in upper layers of the lake (mostly algae) sinks into the lower layers of the lake, where it is decomposed by microbes. This decomposition process consumes oxygen, which reduces oxygen concentrations in the lower levels of the lake. After oxygen is consumed, microbes at the lake bottom can no longer use oxygen to support their metabolic processes. Certain microbes can use other chemicals, besides oxygen, to support their metabolic process. If dissolved mercury is present during low oxygen conditions (which it is in Almaden Lake), anaerobic iron and sulfate-reducing bacteria convert mercury to methylmercury as a byproduct of their metabolic process. These processes stop when oxygen is present, but resume when bottom waters (and surficial lake bottom sediments) return to low oxygen conditions.

Under certain conditions, low oxygen conditions can persist for long periods in the lake, leading to extended periods of time when mercury methylation can occur. For example, during 2014 through 2015, temperature stratification of the lake persisted almost throughout the year, and low oxygen conditions (i.e., dissolved oxygen below 2 mg/L) persisted in the deepest region of the lake. During the 2016-2017 sampling period, temperature stratification did not occur throughout the whole year, but for longer than occurs in the reservoirs. Such conditions have the potential to support mercury methylation during an extended period.



SOURCE: McCord, 2016, and references therein.

Figure 3.K-2
Mercury Methylation Schematic

Methylmercury Bioconcentration

Methylmercury is readily bioaccumulated and transferred through food webs, and can biomagnify to high concentrations in certain species. Algae absorb methylmercury from the water column through passive diffusion. Zooplankton consume the algae, and the methylmercury remains in their bodies. Fish that consume the zooplankton, and larger fish that consume smaller fish also carry the methylmercury in their bodies. As a result, methylmercury concentrations are elevated further up the aquatic food chain. Bioconcentration is therefore especially problematic for birds and humans that consume larger fish from mercury contaminated waters, due to high concentrations of toxic methylmercury.

Almaden Lake Mercury Concentrations and Safety Advisories

In March 2015, four (4) discrete sediment samples were collected from Almaden Lake from depths between 3 feet to 10 feet below top of sediment. Mercury concentrations ranged from 4.5 to 29 (average 19) mg total mercury per kg of sediment. These values are high relative to the most commonly used environmental screening level of 1.3 mg/kg (RWQCB, 2016) and the California thresholds for hazardous waste classification (Total Threshold Limit Concentrations) of 20 mg/kg (California Code of Regulations, Title 22, Chapter 11, Article 3).

Fish downstream of the New Almaden Mining District have extremely high concentrations of mercury in their tissues. As of 2004, Guadalupe Reservoir had the highest recorded fish mercury concentrations in California—about 20 times higher than the U.S. Environmental Protection Agency (U.S. EPA) methylmercury criterion. In 1987, Santa Clara County issued a fish consumption advisory warning people not to eat any fish from Guadalupe, Almaden and Calero reservoirs, Guadalupe and Alamitos creeks, the Guadalupe River, and percolation ponds along the river and creeks. The Office of Environmental Health Hazard Assessment (OEHHA) advises that no one consume fish from the Guadalupe River Watershed waters because elevated mercury concentrations are unsafe for any individual (OEHHA, 2015). Additionally, fish advisories are posted at Almaden Lake.

Methylmercury Management Practices Implemented to Date

To reduce oxygen depletion in the deep layers of the lake, the District operates four solar-powered circulators. These are designed to mix surface water with higher dissolved oxygen into lake bottom waters and vice versa, thereby increasing oxygen content of lower layers and reducing mercury methylation. The first circulator was deployed in 2006, a second in 2007, and two more in 2009. The devices draw water to the surface through a vertical pipe, where it is oxygenated by contact with air at the surface. The devices were shown to provide some benefit, by partially reducing methylmercury concentrations in the lowest layers of the lake, but have not been effective enough to reduce bioconcentration in the lake. While peak methylmercury concentrations in the lowest layers of the lake have decreased since installation of the mixers, concentrations in the middle and upper layers of the lake have not significantly changed. As a result, methylmercury concentrations in small and large fish have not meaningfully decreased since 2005, and both size classes continue to greatly exceed applicable TMDL objectives (McCord, 2016; SCVWD, 2017).

Summary of Conditions Affecting Lake Water Quality

As noted previously, Almaden Lake was formed when a levee breech resulted in the flooding of a quarry on site. The result is a lake that exhibits an irregular bathymetry that sustains long periods of hypolimnetic anoxia. High levels of mercury in the lake's watershed, combined with relatively low flows through the lake, in comparison to its volume, have resulted in the deposition of mercury in the lake. Limited circulation combined with high summer temperatures and high nutrient concentrations drives dry season algal blooms in the lake, which directly contributes to low dissolved oxygen in deep areas of the lake. Low dissolved oxygen, which has been shown to persist in deep areas of the lake for most of the year, enables microbes to convert mercury into methylmercury, which is toxic and bioaccumulates up the food chain. Fecal matter input from waterbirds contribute nutrients, which may support algal blooms, and may also contribute to very high concentrations of coliform and other bacteria observed in the upper water column.

Proposed Source Water Characteristics

As discussed in Chapter 2, Project Description, the Project would rely on untreated raw water from the Almaden Valley Pipeline. Almaden Valley Pipeline water is typically imported water under the District's Central Valley Project (CVP) contract, and comes from the delta via San Luis Reservoir through a series of pipes that brings water into Santa Clara County for distribution to water treatment plants, percolation facilities, Anderson Reservoir, Calero Reservoir and/or local creeks for in-stream recharge. In addition to imported water, the Almaden Valley Pipeline can convey water captured at Anderson Reservoir and Calero Reservoir for water supply uses. Water quality in San Luis Reservoir and Calero Reservoir is considered impaired for mercury (refer to the discussion of the 303(d) List of Impaired Water Bodies, below), but otherwise has generally good water quality without other impairments (RWQCB, 2016).

Waterborne mercury and methylmercury concentrations in Calero Reservoir are monitored regularly as part of the Guadalupe River Watershed Mercury TMDL. Flow weighted annual average mercury concentrations ranged from approximately 6.1 to 10.2 ng/L during the 2010 through 2017 monitoring period, whereas methylmercury concentrations ranged from approximately 0.1 to 2.7 ng/L during 2010 through 2017 (SCVWD, 2017).

3.K.2 Regulatory Setting

Federal Regulations

Clean Water Act

The federal Clean Water Act (CWA) and subsequent amendments, under the enforcement authority of the U.S. EPA, was established “to restore and maintain the chemical, physical, and biological integrity of the Nation’s waters.” The CWA established the basic structure for regulating discharges of pollutants into the waters of the United States. It gave the U.S. EPA the authority to implement pollution control programs, such as setting wastewater standards for industry and requirements for stormwater control. In California, the State Water Resources Control Board (SWRCB) and nine RWQCBs are delegated the authority to implement and enforce compliance with the CWA via California’s Porter-Cologne Water Quality Control Act.

303(d) List of Impaired Water Bodies and Total Maximum Daily Loads

Under Section 303(d) of the CWA, states are required to develop a list of impaired waters, which are water bodies that do not meet state water quality standards. Water quality standards include designated beneficial uses and water quality objectives (WQOs) (40 CFR 131.3(i)). Inclusion of a waterbody on the Section 303(d) List of Impaired Water Bodies triggers development of a TMDL for that waterbody and a plan to control the associated pollutant/stressor that a waterbody can assimilate and still meet water quality standards. Typically, a TMDL is the sum of the allowable loads of a single pollutant from all contributing point and nonpoint sources.

Almaden Lake, plus all upstream waterbodies–Almaden Reservoir, Calero Reservoir, and Alamitos Creek – are included on the 303(d) list for mercury impairment. Guadalupe Reservoir and Guadalupe Creek are also listed for mercury impairment, and the Guadalupe River is listed for mercury, diazinon, and trash impairment (RWQCB, 2016). Due to elevated mercury concentrations in fish tissue in several waterbodies in the Guadalupe River Watershed, a mercury TMDL was adopted by the Regional Board in 2008 and approved by the EPA for the watershed in 2010 as a strategy to address mercury pollution (U.S. EPA, 2010).

State Regulations

Porter-Cologne Water Quality Control Act

The Porter-Cologne Water Quality Control Act (Division 7 of the California Water Code) provides the basis for water quality regulation within California. This Act establishes the authority of the SWRCB and the nine RWQCBs. The SWRCB administers water rights, sets state policy for water pollution control, and implements various water quality functions throughout the state, while the RWQCBs conduct planning, permitting, and most enforcement activities. The Project site lies within the jurisdiction of the San Francisco Bay RWQCB (Region 2), and references to the RWQCB throughout this section refer to Region 2.

The Porter-Cologne Water Quality Control Act requires the SWRCB and/or the RWQCBs to adopt statewide and/or regional water quality control plans, the purpose of which is to establish water quality objectives for specific water bodies. In the San Francisco Bay region, the Water Quality Control Plan, known as the Basin Plan, is the RWQCB's master policy document. The Act also authorizes the SWRCB and RWQCBs to implement the National Pollutant Discharge Elimination System (NPDES) program, which establishes discharge limitations and receiving water quality requirements for discharges to waters of the United States.

Water Quality Control Plans and Beneficial Uses

The RWQCB's Basin Plan establishes regulatory standards and objectives for water quality in the San Francisco Bay region (RWQCB, 2015a). The Basin Plan identifies existing and potential beneficial uses for surface water and groundwater and provides numerical and narrative water quality objectives designed to protect those uses. Applicable water quality objectives for a specific water body are determined on the basis of the beneficial use(s) of the water. The Basin Plan also specifies that beneficial use designations for any given water body do not rule out the possibility that other beneficial uses exist or have the potential to exist. Existing beneficial uses that have not been formally designated in the Basin Plan are protected whether or not they are identified.

The RWQCB Water Quality Control Plan (Basin Plan) designates Almaden Lake as supporting the following beneficial uses:

- Municipal and Domestic Supply (MUN)
- Groundwater Recharge (GWR)
- Cold Freshwater Habitat (COLD)
- Preservation of Rare and Endangered Species (RARE)
- Fish Spawning (SPWN)
- Warm Freshwater Habitat (WARM)
- Wildlife Habitat (WILD)
- Body-contact Recreation (REC1 - potential)
- Noncontact Water Recreation (REC2)

Of the above designated uses, the uses that are most directly sensitive to mercury and methylmercury levels are those related to habitat for aquatic organisms; specifically COLD, WARM, SPWN, WILD, and RARE. While the Basin Plan lists REC1 (including full body-contact recreation) as a beneficial use of Almaden Lake, swimming and wading in the lake are not allowed by the City of San José, due to water quality concerns related to high fecal indicator bacteria counts and frequent cyanobacteria blooms.

The Basin Plan contains narrative and numeric WQOs that apply to most waters in the region and are intended, in part, to ensure that beneficial uses are protected. As previously discussed, in 2008 the RWQCB adopted a TMDL for mercury in water for Almaden Lake and site-specific objectives for mercury in fish tissue. In addition, due to the lake's uneven depth and high nutrient and organic matter from algal blooms and waterbirds, anoxic conditions exist in bottom waters in which microbes readily transform elemental mercury in the sediment into methylmercury. The current WQOs for biostimulatory substances (i.e., nutrients) and mercury are cited below from the Basin Plan. While it is recognized that other WQOs exist for additional water quality constituents (pathogens, metals, etc.), the objectives presented below are the most relevant for water quality concerns in Almaden Lake.

Biostimulatory Substances

Waters shall not contain biostimulatory substances in concentrations that promote aquatic growths to the extent that such growths cause nuisance or adversely affect beneficial uses. Changes in chlorophyll a and associated phytoplankton communities follow complex dynamics that are sometimes associated with a discharge of biostimulatory substances. Irregular and extreme levels of chlorophyll a or phytoplankton blooms may indicate exceedance of this objective and require investigation.

Mercury

The WQOs for mercury shown in **Table 3.K-1** are applicable to the Project:

TABLE 3.K-1
FRESHWATER WATER QUALITY OBJECTIVES FOR MERCURY IN THE GUADALUPE RIVER WATERSHED

Protection of Aquatic Organisms and Wildlife[1]	0.05 mg methylmercury per kg fish	Average wet weight concentration measured in whole trophic level 3 fish 5–15 cm in length
	0.1 mg methylmercury per kg fish	Average wet weight concentration measured in whole trophic level 3 fish 15 – 35 cm in length

[1] The freshwater water quality objectives for the protection of aquatic organisms and wildlife also protect humans who consume fish from the Walker Creek and Guadalupe River watersheds.

SOURCE: RWQCB, 2015a

Note that additional numeric WQOs are also identified under the Basin Plan for mercury, including: (1) 2,000 nanograms of mercury per liter (ng/L) of water for municipal supply; and (2) 25 ng/L four day average and 2,400 ng/L one-hour average for toxic effects. The California Toxics Rule also limits total mercury concentrations in freshwater sources of drinking water to 50 ng/L as a 30-day average. However, these objectives are much greater than the mercury concentrations needed in water to result in protective fish tissue objectives. Therefore, it is the fish tissue objectives shown above that drive the current regulatory approach within Almaden Lake.

Guadalupe River Watershed Mercury TMDL and Implementation Plan

The Guadalupe River Watershed Mercury TMDL and implementation plan are designed to resolve mercury impairment in waters downstream of mercury mines in the Guadalupe River Watershed, including Alamitos Creek and Almaden Lake (RWQCB, 2008). The TMDL allocation applicable to Almaden Lake is 1.5 ng/L methylmercury, expressed as a seasonal maximum methylmercury concentration in the hypolimnion.[1] The TMDL allocation that applies to Alamitos Creek is 0.2 mg mercury per kg suspended sediment (dry weight, annual median). This allocation is based on the Bay-wide suspended sediment mercury concentration target of 0.2 mg mercury per kg dry sediment.

The Guadalupe River Watershed mercury TMDL's implementation is proceeding over two phases. The first phase began on January 1, 2009, with goals for effective source control measures for mining waste at mine sites; completion of studies to reduce discharge of mining waste accumulated in Alamitos Creek; and completion of studies of methylmercury and bioaccumulation controls in reservoirs and lakes. The goal for the second 10-year phase of implementation will be the attainment of the watershed fish tissue targets and the San Francisco Bay mercury TMDL allocations to urban stormwater runoff and legacy mercury sources in the Guadalupe River Watershed, by December 31, 2028.

Waste Discharge Requirements

NPDES Discharge Permits

The federal CWA established the NPDES program to protect the water quality of receiving waters of the United States. Under the CWA, Section 402, discharging pollutants to receiving waters of the United States is prohibited unless the discharge is in compliance with an NPDES permit. For California, the U.S. EPA determined that the state's water pollution control program had sufficient authority to manage the NPDES program under California law in a manner consistent with the Clean Water Act.

Municipal Regional Stormwater Permit

In 2015, the RWQCB re-issued the Municipal Regional Stormwater NPDES Permit, RWQCB Order No. R2-2015-0049 (MRP) to regulate stormwater discharges from municipal separate storm sewer systems (MS4s) from municipalities and local agencies in Alameda, Contra Costa, San Mateo, and Santa Clara Counties, plus the cities of Fairfield, Suisun City, and Vallejo (Permittees). The MRP requires the Permittees to enact pollution prevention and control actions and pollutant impact assessments to comply with applicable TMDLs and other WQOs (RWQCB, 2015b).

Stormwater runoff in the areas regulated by the MRP flows into the San Francisco Bay and Suisun and San Pablo Bays. The quality and volume of runoff varies according to hydrology, geology, land use, season, and sequence and duration of hydrologic events. Pollutants of concern include heavy metals, sediment, petroleum hydrocarbons, microbial pathogens,

[1] Hypolimnion refers to the lower levels of water in a lake, just above the lake bed. These waters are typically cooler than upper levels of the lake, and can become stagnant.

pesticides, nutrients, and trash. Some pollutants are from extraneous sources such as particulate deposition onto impervious surfaces, in which jurisdictions have little control. Permittees are required to implement BMPs to the standard defined as the “maximum extent practicable” to minimize the extent of pollutants entrained in stormwater. The RWQCB also requires actions to protect the water quality of receiving waters. Annual reports are required to be submitted by co-permittees, documenting compliance with applicable elements of the MRP.

Section C.6 of the MRP includes requirements for a construction site inspection and control program at all construction sites to prevent construction site discharges of pollutants into storm drains. Permittees have legal authority to oversee, inspect, and require compliance at construction sites with regards to effective erosion control, run-on and runoff control, sediment control, active treatment systems, good site management, and non-storm water management.

Statewide General Permit for Construction Activity

The State of California adopted a revised Construction General Permit (CGP) on September 2, 2009 (Order No. 2009-0009-DWQ as amended by 2010-0014-DWQ and 2012-0006-DWQ) (General Construction NPDES Permit). The General Construction NPDES Permit regulates construction site storm water management. Dischargers whose projects disturb one or more acres of soil, or whose projects disturb less than one acre but are part of a larger common plan of development that in total disturbs one or more acres, are required to obtain coverage under the CGP for discharges of storm water associated with construction activity. The Project would be required to comply with the permit requirements to control stormwater discharges from the construction sites. Construction activity subject to this permit includes clearing, grading, and disturbances to the ground, such as stockpiling or excavation, but does not include regular maintenance activities performed to restore the original line, grade, or capacity of the facility.

In the Project area, the CGP is implemented and enforced by the SWRCB, which administers the stormwater permitting program. To obtain coverage under this permit, Project operators must electronically file Permit Registration Documents, which include a Notice of Intent, a Stormwater Pollution Prevention Plan (SWPPP), and other compliance-related documents. An appropriate permit fee must also be mailed to SWRCB. The SWPPP identifies BMPs that must be implemented to reduce construction effects on receiving water quality based on potential pollutants. The BMPs identified are directed at implementing both sediment and erosion control measures and other measures to control potential chemical contaminants. The SWPPP also includes descriptions of the BMPs to reduce pollutants in storm water discharges after all construction phases have been completed at the site (post-construction BMPs). Dischargers are responsible for notifying the SWRCB of violations or incidents of non-compliance, as well as for submitting annual reports identifying deficiencies of the BMPs and how the deficiencies were corrected.

The permit includes several new requirements (as compared to the previous CGP, 99-08-DWQ), including risk-level assessment for construction sites, an active storm water effluent monitoring and reporting program during construction (for Risk Level II and III sites), rain event action plans for certain higher risk sites, and numeric effluent limitations for pH and turbidity as well as requirements for qualified professionals that prepare and implement the plan. The permit became effective July 1, 2010.

Regional and Local Regulations

Santa Clara Valley Water District Groundwater Management Plan

The District is the Groundwater Sustainability Agency for the entire Santa Clara Subbasin and has prepared the 2016 Groundwater Management Plan (GMP) that describes basin conditions, sustainability goals, strategies, programs, and outcome measures for the entire Santa Clara Subbasin. The GMP was adopted by the District's Board of Directors in November 2016. Briefly, the GMP recognizes the District's extensive water management infrastructure, including groundwater pumping and recharge facilities; reviews historic groundwater levels and land subsidence; identifies subbasins; and outlines a series of sustainability goals and strategies, basin management programs and activities, and targeted outcome measures relevant to groundwater management as a resource in the District's service area.

City of San José Post-Construction Urban Runoff Management Policy (6-29)

The purpose of the Post-Construction Urban Runoff Management Policy (6-29) is to establish requirements to minimize and treat stormwater runoff from new development and redevelopment projects, pursuant to the MRP. Redevelopment is development on previously developed properties. Policy 6-29 requires projects to manage stormwater based on the proposed land use and amount of impervious surface area being created and/or replaced by the project. Provisions vary in accordance with MRP project types (discussed below) and incorporate requirements for certain Land Uses of Concern that involve outdoor handling and/or storage of material that have potential to contaminate stormwater runoff (City of San José, 2011). Policy 6-29 regulates the following categories of projects that are applicable to the Project:

> **All Development Projects:** Site Design and Source Control Measures are encouraged. All new and redevelopment projects regardless of size and land use are encouraged to incorporate site design and pollutant source control practices in a manner consistent with the strategies set forth in this Policy. Pollution prevention measures shall be incorporated into development plans and maintained in perpetuity once constructed.

Policy 6-29 establishes three primary strategies to manage stormwater runoff:

- Minimize Runoff through Site Design (Quantity Control)
- Prevent Polluted Runoff with Source Control
- Treat Stormwater with Low Impact Development (LID)

City of San José General Plan

MS-17.2. Ensure that development within San José is planned and built in a manner consistent with fiscally and environmentally sustainable use of current and future water supplies by encouraging sustainable development practices, including low-impact development, water-efficient development and green building techniques. Support the location of new development within the vicinity of the recycled water system and promote expansion of the South Bay Water Recycling (SBWR) system to areas planned for new development. Residential development outside of the Urban Service Area can be approved only at minimal levels and only allowed to use non-recycled water at urban intensities. For residential development outside of the Urban Service Area, restrict water usage to well water, rainwater collection, or other similar environmentally sustainable practice. Non-residential development may use the same sources and potentially make use of recycled water, provided that its use will not result in conflicts with other General Plan policies, including geologic or habitat impacts. To maximize the efficient and environmentally beneficial use of water outside of the Urban Service Area, limit water consumption for new development so that it does not diminish the water supply available for projected development in areas planned for urban uses within San José or other surrounding communities.

ER-8.1. Manage stormwater runoff in compliance with the City's Post-Construction Urban Runoff (6-29) and Hydromodification Management (8-14) Policies.

ER-8.4. Assess the potential for surface water and groundwater contamination and require appropriate preventative measures when new development is proposed in areas where storm runoff will be directed into creeks upstream from groundwater recharge facilities.

ER-8.5. Ensure that all development projects in San José maximize opportunities to filter, infiltrate, store and reuse or evaporate stormwater runoff onsite.

ER-9.4. Work with the District to preserve water quality by establishing appropriate public access and recreational uses on land adjacent to rivers, creeks, wetlands, and other significant water courses.

ER-9.5. Protect groundwater recharge areas, particularly creeks and riparian corridors.

EC-5.1. The City shall require evaluation of flood hazards prior to approval of development projects within a Federal Emergency Management Agency (FEMA) designated floodplain. Review new development and substantial improvements to existing structures to ensure it is designed to provide protection from flooding with a one percent annual chance of occurrence, commonly referred to as the "100-year" flood or whatever designated benchmark FEMA may adopt in the future. New development should also provide protection for less frequent flood events when required by the State.

EC-5.3. Preserve designated floodway areas for non-urban uses.

EC-5.4. Develop flood control facilities in cooperation with the Santa Clara Valley Water District to protect areas from the occurrence of the "1%" or "100-year" flood or less frequent flood events when required by the State.

EC-5.10. Encourage the preservation and restoration of urban creeks and rivers to maintain existing floodplain storage. When in-channel work is proposed, engineering techniques which include the use of plant materials (bioengineering) are encouraged.

EC-5.16. Implement the Post-Construction Urban Runoff Management requirements of the City's Municipal NPDES Permit to reduce urban runoff from project sites.

IN-3.11. The "modified floodplain design" is the preferred design for future flood protection facilities. Use the "widen-one-bank" and "trapezoidal channel" designs only when funding or right-of-way limitations make the use of the modified flood plain design impractical. For future development, consider factors such as flooding risks, proximity to waterways, and the potential for implementing flood protection measures.

3.K.3 Impacts and Mitigation Measures

Significance Criteria

Implementation of the Project would have a significant impact on hydrology and water quality if it were to:

- Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality;
- Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin;
- 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:
  - result in substantial erosion or siltation on- or off-site;
  - substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite;
  - 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;
  - impede or redirect flood flows
- In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation;
- Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan.

Approach to Analysis

Avoidance and Minimization Measures Incorporated into the Project

Avoidance and minimization measures are those parameters that have been built into the design of the Project and are committed to as part of Project implementation. These measures are generally included in the Project Description (Section 2.E.1) of this report.

WQ-3. Limit Impact of Pump and Generator Operation and Maintenance.

WQ-5. Stabilize Construction Entrances and Exits.

WQ-6. Limit Impact of Concrete Near Waterways.

WQ-9. Use Seeding for Erosion Control, Weed Suppression, and Site Improvement.

WQ-10. Prevent Scour Downstream of Sediment Removal.

WQ-12. Manage Well or Exploratory Boring Materials.

WQ-13. Protect Groundwater from Contaminates Via Wells or Exploratory Borings.

WQ-15. Prevent Water Pollution.

WQ-16. Prevent Stormwater Pollution.

No Impact Significance Determinations

Based on the nature of the Project, there would be no impact related to the following criterion:

Placement of Housing within a 100-Year Flood Zone. The Project does not propose the construction of housing, so there would be no impact related to the construction of housing within a 100-year flood zone. Therefore, this criterion is not applicable to the Project and is not discussed further.

***Risk of Loss, Injury, or Death Involving Inundation by Seiche, Tsunami, or Mudflow*.** The Project would involve recontouring and reducing the volume of Almaden Lake, an existing inland lake. The lake is located at an elevation of 191 feet above sea level, and is situated 13 miles inland from the San Francisco Bay. As such it is not susceptible to tsunami. Potential for mudflow at the Project site is also considered minimal. While the watershed feeding into Almaden Lake contains mountainous terrain, these areas are generally well vegetated, and do not contain soil types prone to mass flows. Additionally, impoundments upstream of the Project area would contain any mudflows, even in the unlikely event that such an event were to occur. With respect to seiche, Almaden Lake, as a large enclosed water body, is under existing conditions susceptible to seiche, particularly during geologic movement. The Project would reduce the volume and area of the lake, resulting in a smaller water body that continues to be susceptible to seiche. While the lake would remain susceptible to seiche, the Project would not install housing or other facilities that could be substantially damaged, in the event that a seiche were to occur. Nor would it include new embayments, permanent harbors, or other features that could increase susceptibility to seiche. Therefore, no increase in the intensity of potential seiche events is anticipated at the Project site, in comparison to baseline conditions, no impact would occur, and this issue is not discussed further.

Impact Summary

Table 3.K-2 provides a summary of hydrology and water quality impacts by implementation phase (construction and operations).

TABLE 3.K-2
SUMMARY OF HYDROLOGY AND WATER QUALITY IMPACTS

Impact Statement	Construction	Operation
Impact 3.K-1: The Project would violate water quality standards or waste discharge requirements, conflict with or obstruct implementation of the Basin Plan, or otherwise substantially degrade surface or groundwater quality.	LSM	LS
Impact 3.K-2: The Project would not substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the Project may impede sustainable groundwater management of the basin or conflict with the Groundwater Management Plan.	LS	LS
Impact 3.K-3: The Project would 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 could: (i) Result in substantial erosion or siltation 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 planned stormwater drainage systems or provide substantial additional sources of polluted runoff (iv) Impede or redirect flood flows	LSM	LS

LS = Less than significant
LSM = Less than significant with mitigation

Impacts and Mitigation Measures

Impact 3.K-1: The Project would violate water quality standards or waste discharge requirements, conflict with or obstruct implementation of the Basin Plan, or otherwise substantially degrade surface or groundwater quality. (Less than Significant with Mitigation)

Construction Impacts

Construction of the Project would require the use of heavy construction equipment, the use of which could result in the release of water quality pollutants into the environment. For example, use and refueling of graders, bulldozers, large trucks, and other equipment could result in spills of fuels, lubrication oil, hydraulic oil, and other potential water quality pollutants. Construction could also include the use of paints, generation of concrete wash-out, on-site / staging area storage of fuels and oils, and other items that could be released into the environment. The District implements BMPs WQ-3, WQ-5, WQ-6, WQ-9, WQ-10, WQ-12, WQ-13, WQ-15 and WQ-16, to reduce potential for releases of water quality contaminants during construction by preventing hazardous materials used during construction from entering waterways, minimizing erosion associated with construction, and planting bare ground at the end of construction. Furthermore, the Project would be required to acquire coverage under the Construction General Permit. Conditions of the permit would require deployment of additional water quality pollutant minimization measures, including construction and equipment related BMPs, and stormwater management BMPs. Adherence to existing regulation and implementation of District BMPs would ensure that construction period stormwater pollutant impacts would be minimized and would be **less than**

significant, and that any potential water quality releases would not degrade beneficial use or interfere with implementation of the Basin Plan.

During the construction process, Almaden Lake would be drained to allow access to the lake bottom. Draining of the lake would require discharge of lake waters into downstream areas of Alamitos Creek and the Guadalupe River. Discharge of lake waters into Alamitos Creek is generally not anticipated to cause a reduction in water quality downstream, in comparison to existing conditions, because lake waters are already discharged downstream under existing conditions. However, when the lake is drawn down to near bottom, potential mixing of waters with bottom sediments could result in the release of increased sediment loads. Lake bottom sediments are known to contain high concentrations of mercury. In addition, after drawdown of the lake is complete, groundwater dewatering may be required to establish and maintain a dry lake bed to provide a working surface for the construction equipment which could release sediment, mercury, and other potential water quality pollutants to downstream areas. Releases of water containing elevated concentrations of sediment could therefore also contain elevated mercury levels, resulting in a **significant impact** related to downstream water quality degradation.

Implementation of **Mitigation Measure 3.K-1 (Monitor and Manage the Quality of Lake Discharges to Creek)** would minimize these effects by ensuring that sediment and/or mercury-laden sediment is not discharged to surface waters. Adherence to this mitigation measure would reduce this impact to **less than significant** and alleviate potential for conflict with the Basin Plan.

Operations Impacts

The Project includes several measures that would directly address mercury and methylmercury issues relevant to Almaden Lake (see Chapter 2, Project Description). These would include the following:

- Separation of the lake from Alamitos Creek, thereby disconnecting the ongoing supply of mercury-laden sediments and source water from Alamitos Creek into the lake.
- Use of raw water supplied from the Almaden Valley Pipeline, which has imported delta water as a primary water source. Water supplied from the delta carries lower concentrations of mercury and methylmercury than water supplied from Alamitos Creek under existing conditions.
- Removal of and capping of mercury-laden sediments within the existing lake with a clean, impermeable clay layer to minimize flux of methylmercury to the lake from underlying sediments.
- Recontouring (filling and flattening) of the lake bottom sediments, to eliminate deep, isolated pockets which currently appear to harbor low oxygen concentrations and thereby produce the highest concentrations of methylmercury.
- Continuing to operate solar-powered water circulators (SolarBees), and add more circulators, while reducing lake volume, thereby slowing the loss of dissolved oxygen from the lake, reducing mercury methylation; alternatively, deploying vigorous epilimnetic mixing, or equivalent methods.

These activities are expected to substantially reduce mercury and methylmercury concentrations in both lake bottom sediments and in the water column of Almaden Lake, in comparison to existing conditions. During long term operation of the Project, the lake would remain disconnected from sediment-bound mercury associated with the Guadalupe watershed. Elevated levels of mercury-laden sediment would not be delivered to the lake from the Almaden Valley Pipeline, and existing mercury-containing sediments would be buried below a clay layer to sufficient depth that they would no longer have potential to intermix with lake bottom waters, lake bottom sediments, or associated microbial communities. Any mercury present in lake waters or sediments would be subject to greatly reduced anoxic conditions, in comparison to the existing lake, due to recontouring and applied vertical mixing. Therefore, the Project is expected to reduce elemental mercury concentrations and greatly alleviate methylmercury production in Almaden Lake.

The Project is also expected to alter other water quality parameters. First, algae concentrations in the lake are likely to decrease with implementation of the Project, because the sediment removal and clay cap would substantially reduce the amount of nutrient rich organic matter in bottom sediments. Local nutrient sources, including waterbirds and urban runoff, would continue to contribute nutrients to the lake. Nonetheless, reduced nutrients available from bottom sediments would reduce the total nutrients available to support algal productivity as compared to existing conditions. During summer periods, continuous input of at least 5 cfs of Almaden Pipeline water to the system would help to ensure that the lake maintains a flushing rate/water residence time of approximately once per 20 to 35 days, which is generally consistent with or better than existing conditions, helping to reduce temperatures and minimize stagnation of the water body. During winter periods, water residence times would be longer than typical existing conditions. Nonetheless, algal overgrowth is not expected to occur during these periods due to reduced water temperature, lower light levels, and reduced nutrient source from bottom sediments. Therefore, the Project is expected to generate a net reduction in algal concentrations and a net reduction in bloom conditions during Project operation. It is noted that continuous input may be slowed or halted during periods of drought, high groundwater levels in the groundwater basin, or when other water rights would need to be exercised in the Alamitos Percolation Pond; however, water loss in the lake is expected to be minimal due to evaporation and water would not become stagnant and temperature would not be expected to increase substantially, and therefore, algal overgrowth would not occur during these periods.

Dissolved oxygen levels, especially in the lower levels of the lake, are directly tied to algal productivity and internal lake circulation rates. As discussed previously, high levels of algal productivity can cause microbes in bottom waters to rapidly consume available oxygen, driving down dissolved oxygen levels. Therefore, a combination of reduced algal productivity and increased in-lake circulation (due to a shallower lake bottom and applied mixing) under the Project is expected to minimize potential for low dissolved oxygen levels as compared to existing conditions. Therefore, the Project is likely to generate a net benefit over existing conditions with respect to dissolved oxygen levels.

Nitrogen and phosphorous in the lake are currently derived from a combination of upstream sources, decaying organic matter contained in bottom sediments, nitrogen fixation during cyanobacteria blooms, urban runoff, and waterbirds. The Project would reduce or remove select sources of nutrients to the lake as follows:

- The Project would avoid inputs of nutrients from upstream along Alamitos Creek/the Guadalupe River watershed.
- The Project would cap bottom sediments, eliminating them as an immediate source of nutrients to the lake.
- The Project may reduce the incidence of algal blooms (including cyanobacteria) as a result of removal of existing bottom sediments, helping to drive down the introduction of nutrients from these sources.

The Project would not alter nutrient inputs from the following sources:

- Urban runoff would continue to provide nitrogen and, to a lesser extent phosphorous, to the system.
- Waterbirds would continue to provide nitrogen and phosphorous to the system.

In addition, the Project could result in an increase in nutrients available for primary production from the following sources:

- Application of pesticides by releasing nutrients stored in living organic matter back into the water column. Pesticides would be applied intermittently if / as needed.

Creating a flow-through system utilizing imported source water, and providing a continual flow of water through the lake would decrease water's residence time, which may improve water quality. These improvements would be expected to improve the ecological health of the aquatic-to-terrestrial food chain in the lake, should fish be introduced into the lake again through the transfer pipeline or other means, while also reducing methylmercury entering San Francisco Bay. Such improvements also would be designed to create a less eutrophic lake (i.e., fewer algal blooms).

The creek/lake separation would create new lake and stream margins that would result in an increase of wetland, riparian, and upland vegetation. This increase in vegetation would be designed to enhance the functions associated with these vegetation types, including removal of water nutrients, and slowing and sequestering runoff and associated pollutants and fine sediment before it enters the creek and lake. These actions have been designed to help reduce toxic algal blooms and other water quality issues.

Over time, it is possible that the combined effects of waterbirds, periodic (although less frequent) algal blooms, and senescence of benthic algae would contribute nutrient loads to benthic sediments in the lake. Nutrient balance and dynamics are inherently difficult to predict, especially for a system over long periods of time. Therefore, there exists a possibility that over time, nutrient levels in the lake could increase. However, based on the analysis completed in support of this Project, an increase to the point of exceeding existing levels appears unlikely. Nonetheless, even a moderate level of increase over time could drive increased incidence of oxygen depletion, and a partial recurrence of conditions that would favor the creation of methylmercury in lower levels of the lake. Water column mercury contained in water sourced, in part, from the delta could still drive methylation in the lake under some conditions. However, due to changes in system operation—namely separation from Alamitos Creek, a shallower lake, and improved in-lake mixing—lake conditions would not be expected to return to or underperform in comparison to existing water quality levels.

The restored creek channel would be designed to have a stable geomorphic channel. The geomorphic design would include a riffle-pool-run pattern, designed to neither aggrade nor degrade, for the entire length of the restored creek section. The slope and riffle-pool-run pattern would be similar to the Alamitos Creek channel section immediately upstream of the Project area. Channel design would be informed by two analyses developed by the District:

- Draft Sediment Transport Analysis, which utilized a HEC-RAS sediment transport capacity module to determine sediment transport capacity using bankfull design flow. The analysis compared the existing upstream reach and the restored reach to determine a channel slope that could accommodate anticipated sediment volumes (SCVWD, 2017a).
- Bankfull Discharge Analysis, which utilized a HEC-RAS hydraulic model to determine the effective discharge for Alamitos Creek just upstream of Almaden Lake to appropriately size the creek channel (SCVWD, 2016d).

Project operations could include the use of pesticides to manage emergent and near-water invasive vegetation. Use of pesticides in these areas could result in water quality degradation, particularly if pesticides come in direct contact with water or rainfall. However, as discussed in Impact 3.J-2, use of pesticides would be required to comply with pesticide regulations designed to ensure that the pesticides would be applied in a safe manner to protect the safety of the workers and the public, and in a manner appropriate for the environment. Further, the District has incorporated Avoidance and Minimization Measures into the Project, provided in the District's BMP Handbook. The listed specific measures would further reduce the potential for and minimize the impact of hazardous materials releases through restrictions on upland pesticide application within 72 hours of predicted significant rainfall, utilizing only pesticides registered for aquatic use in aquatic areas, seasonal limitations on aquatic pesticide use, ensuring proper handling of pesticides and protecting the quality of water resources by all reasonable means (as specified in District BMP HM-9).Therefore, compliance with existing regulations and implementation of the Avoidance and Minimization Measures would reduce the impacts related to the use of pesticides to **less than significant**. No mitigation measures would be required.

Finally, the Project would discharge Almaden Valley Pipeline water (sourced primarily from the delta) from Almaden Lake to the Los Alamitos Percolation Pond, where the water would be infiltrated for groundwater recharge. Under existing conditions, Los Alamitos Percolation Pond receives water that has passed through Almaden Lake and Guadalupe Creek. As discussed previously, mercury concentrations in water sourced, in part, from the Delta are lower than those sourced from Almaden Lake. Water could also be sourced from Calero Reservoir which is generally is considered to have good water quality and does not have other water quality impairments, according to the current 303(d) list (see prior discussion of Calero Reservoir and the 303(d) list). Therefore, the Project would likely result in a net improvement in water quality entering the Los Alamitos Percolation Pond, and would avoid degradation of groundwater quality during recharge. Additionally, by reducing the concentration of mercury and methylmercury in Almaden Lake, the Project would help to comply with Basin Plan and TMDL objectives and implementation.

Future maintenance would include bank stabilization as needed, and sediment removal that is estimated to be needed every ten years. These in-channel activities would comply with the District's Stream Maintenance Program, and the same existing regulations and District BMPs discussed under Construction such as acquiring coverage under the Construction General Permit and implementation of BMPs WQ-3, WQ-5, WQ-6, WQ-9, WQ-10, WQ-12, WQ-13, WQ-15 and WQ-16. Adherence to existing regulation and implementation of District BMPs would ensure that stormwater pollutant impacts during maintenance activities would be minimized and would be **less than significant**, and that any potential water quality releases would not degrade beneficial use or interfere with implementation of the Basin Plan.

Mitigation Measures

> **Mitigation Measure 3.K-1:** ***Monitor and Manage the Quality of Lake Discharges to Creek.*** The District and/or its contractor(s) shall monitor the quality of water discharged during drawdown of Almaden Lake during Project construction to ensure all discharges meet Regional Board discharge standards as needed to maintain and preserve beneficial use along downstream waterways, in accordance with the Basin Plan. Initially, water quality shall be tested for turbidity daily during discharge, or as required under the RWQCB Section 401 Water Quality Certification and/or Waste Discharge Permit obtained for the Project. When the lake reaches 10% of its capacity volume, the District shall monitor water quality at least hourly until direct discharge to Alamitos Creek ceases. Monitoring shall be completed in the field using portable equipment. If turbidity concentrations in excess of 500 NTU are detected or as indicated in the Permit, waters shall be treated. Specific measures could include, but would not be limited to, testing for sediment and/or other constituents during pumping to monitor water quality conditions; use of settling basins, baker tanks, or in-line filters for sediment removal; sediment reduction and/or coagulation and filtration, granular activated carbon, lime softening, or membrane filtration to remove mercury; and in-line filtration and other measures to remove other pollutants. Removed sediment shall be tested for mercury concentration, and disposed of in accordance with applicable requirements / regulations. If a dewatering permit from the RWQCB is required, water quality monitoring requirements identified here may overlap with permit requirements. In such a case, monitoring requirements under this mitigation measure could be reduced only to avoid duplicative sampling and analysis.

Significance after Mitigation: Less than Significant. Implementation of Mitigation Measure 3.K-1 would ensure that discharge of sediment laden lake water is minimized to surface waters such that the Project is in compliance with water quality standards, does not substantially degrade surface waters, and does not conflict with implementation of the Basin Plan.

Impact 3.K-2: The Project would not substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the Project may impede sustainable groundwater management of the basin or conflict with the Groundwater Management Plan. (Less than Significant)

Construction Impacts

Project construction would involve drawing down water levels in the existing Almaden Lake, until lake sediments would be exposed. At that point, it is anticipated that additional drawdown of water levels to below the lake bottom would be required, to establish a working surface and to enable excavation of mercury-laden sediments from the lake bottom. In order to accomplish this, as described in Chapter 2, Project Description, dewatering of shallow groundwater would be required.

Dewatering involves the installation of temporary, shallow wells, typically to depths of ten to twenty feet, followed by ongoing pumping, to the extent needed to draw water levels down below the ground surface. Thus, the dewatering process would purposefully result in the temporary drawdown of near surface groundwater to up to several feet below ground surface. The District does not use shallow groundwater as a water supply, instead relying on the deeper aquifer. While this process would result in a temporary drawdown of shallow groundwater, dewatering operations would cease as soon as possible during the construction process, likely following completion of sediment removal, lake bottom recontouring, and placement of fill to support elements of the Project. Upon completion of construction, shallow groundwater levels would return to normal. Long term alteration of groundwater levels is not anticipated, and the Project would therefore not impede sustainable management of the groundwater basin, in accordance with the GMP.

Project construction outside of the lake area for pipeline installation or lake discharge to Los Alamitos Percolation Pond would include only shallow trenching, and is not anticipated to encounter groundwater or to require groundwater dewatering. Other aspects of Project construction would not require or result in groundwater pumping. Therefore, this impact is considered **less than significant**.

Operations Impacts

Under the Project, in addition to diverting water downstream of Almaden Lake for groundwater recharge, imported water from Almaden Lake and ultimately sourced from the Almaden Valley Pipeline would be used for recharge. Groundwater recharge, however, would not be reduced. Under existing conditions, the District has water rights to divert 4,350 AFY of water for recharge from Guadalupe River, in addition to imported water released to Alamitos and Guadalupe Creeks, and re-divert water captured and released from Calero, Almaden, and Guadalupe Reservoirs. Under the Project, the District would have available for recharge the same water supply sources for recharge under existing water rights. Therefore, no net reduction in groundwater recharge is expected during Project operations. Project operation would not interfere with or impede sustainable groundwater management of the basin. This impact is considered **less than significant**.

Mitigation Measures

None required.

Impact 3.K-3: The Project would 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 could:

- **(i) Result in substantial erosion or siltation 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 planned stormwater drainage systems or provide substantial additional sources of polluted runoff**
- **(iv) Impede or redirect flood flows (Less than Significant with Mitigation)**

Construction Impacts

Erosion and Siltation

As discussed previously, Project construction would result in the use of heavy machinery for earth moving and other purposes on site. Earth moving activities, as well as the use of heavy machinery, would result in the denuding and stockpiling of soils and sediments during the construction process. Much of the construction work would be completed within the basin of Almaden Lake. Any stormwater occurring in these areas would drain into the lake bottom, where it would remain, temporarily, until being pumped out by the temporary construction pumping and dewatering system. Stormwater managed using this system would be managed and treated as discussed in Impact 3.K-1 (see above), and in accordance with Construction General Permit requirements. Stormwater in upland areas affected by Project construction would be managed in accordance with District BMPs, as described above, as well as the requirements of the applicable Construction General Permit, which collectively would ensure that stormwater would be controlled on site to minimize the release of sediments downstream, minimize stormwater contact with stockpiled materials, provide for rapid revegetation of denuded slopes and other areas, stabilize construction entrances and exits, and other measures designed to minimize construction period release of sediments to downstream. These measures would reduce potential for erosion in these areas. Therefore, substantial releases of sediment to downstream are not anticipated during construction, and this impact would be **less than significant**.

Impervious Surfaces Drainage System Capacity

Impervious surfaces, including building roofs, pavement, concrete sidewalks, and other non-permeable features, can impede the ability of soils to infiltrate groundwater. Where large areas of impervious surfaces are installed, this can result in a net increase in the volume of surface runoff during storm events. Increased surface runoff can, in turn, exacerbate drainage management issues and result in potential downstream increases in flood flows. However, the Project would not result in the construction of substantial new areas of impervious surfaces. To the contrary, the Project would install new landscaped areas, a restored Alamitos Creek channel, and other largely earthen features that are not classified as impervious surfaces. An updated boat ramp, as well as updated sidewalks and other impervious features would be limited in extent, and would largely replace existing features. Therefore, new impervious surfaces would not be expected to result in a significant increase in stormwater runoff, associated flooding, or exceedance of existing drainage system capacity, and this impact is considered **less than significant**. Potential for the Project to generate polluted runoff is discussed under Impact 3.K-1.

Impede or Redirect Flood Flows

Project construction would result in the temporary closure and draining of Almaden Lake. The lake would be separated from the channel using a series of sheet piles. Creek flows would then be routed behind the sheet piles, allowing draining of Almaden Lake, while enabling creek baseflow and stormwater to pass downstream. In this manner, creek flows would be separated from the remainder of Almaden Lake. Unless properly designed, the sheet piles could result in a temporary constriction of flows of the creek. If a major storm event were to occur during the Project construction period, the temporary conveyance could be insufficient to pass flows downstream, which could result in accidental release of flows into the Almaden Lake work area, creating potential hazards to Project workers and construction equipment. This would be a **significant impact**. Implementation of **Mitigation Measure 3.K-3 (Final Siting of Sheet Pile System)** would minimize this impact to **less than significant levels** by ensuring that temporary construction period creek water management systems would allow sufficient flows to convey major storm events.

Operations Impacts

Erosion, Siltation, Water Conveyance, and Geomorphology

Operation of the Project would involve conveyance of water along the restored Alamitos Creek channel, as well as management of stormwater in the Project area. Under existing conditions, stormwater in the Project area is primarily managed internally – it is routed, via overland flow or existing drainage structures, into Almaden Lake. Limited areas peripheral to the existing Almaden Lake Park, particularly on its western margin, drain to other portions of the City's stormwater management system. These areas would not be altered by the Project. Stormwater along areas fringing the eastern portions of the updated Almaden Lake would be managed as they are at present – that is, via discharge to the lake. In the western areas of the Project, where the new park area would be located, stormwater would be collected on site and conveyed into either Almaden Lake or the restored Alamitos Creek. As discussed in Section 2.D.1, Project Components, the new land area would be pervious and the new channel would be vegetated and adjacent to the new channel, which would also be vegetated and is meant to serve as a floodplain. Thus, stormwater would not be routed into sensitive or erosion-prone areas, and the potential for erosion, siltation, or sedimentation of the new park area would be **less than significant**.

Stream channels are subject to constant erosive and depositional forces. For restored or rerouted channel systems, depending on stream channel design, erosion and deposition are commonly managed using riprap or other hard, erosion resistant surfaces. However, these approaches limit potential habitat and flood management benefits that could otherwise be realized. The Project would rely primarily on earthen and vegetative features to manage flows along the restored Alamitos Creek, thereby mimicking natural conditions. Restoration in this manner, however, requires careful consideration of geomorphic processes, to ensure that factors such as sediment input and output from the restored reach are generally balanced, and that restored stream design considers erosive processes, to ensure that erosion does not occur in areas critical to maintaining system stability (for example, by minimizing erosion near the toe of the levees). As discussed in Section 2.D.1, Project Components, Alamitos Creek Channel Restoration, the Project design incorporated the results of a sediment transport study analysis and a bankfull discharge analysis, to ensure that the new creek channel would be stable and would not migrate outside of intended channel areas during storms and flood events and sediment loads within the Project area would be balanced (inputs equal to outputs).Thus, the intensity of in-stream erosion and sedimentation would be **less than significant**.

Surface Runoff and Drainage System Capacity

During Project operations, stormwater drainage on site would be managed consistent with existing practices, except that drainage from the western flank of what is currently Almaden Lake, and Almaden Lake's existing western shoreline, would be routed into the Alamitos Creek channel, rather than into Almaden Lake. Drainage from the eastern portion of the existing lake would continue to drain into the lake area. A substantial increase in impervious surfaces is not anticipated in these areas, as discussed above; therefore, increases in the volume of stormwater released from the Project site are not anticipated, nor would the capacity of available drainage systems be exceeded, resulting in a **less than significant** impact.

Impede or Redirect Flood Flows

Under the Project, Almaden Lake would be separated from Alamitos Creek by a levee. As discussed in Chapter 2, Project Description, the creek alignment would be sized to maintain sufficient capacity to wholly convey approximately 8,250 cfs of flow – that is, the volume of water anticipated during a 100-year storm event. Therefore, 100-year flooding within the Project area but outside of the channel would be avoided. These flows would pass downstream. While the current FEMA map shows the whole of Almaden Lake as inundated during a 100-year event (Figure 3.K-1), upon completion of the Project, FEMA maps would be updated to show the 100-year flood zone as limited to the leveed area, within the Project area.

Under the Project, 100-year flood flows would be conveyed downstream. The immediate downstream sections of the Guadalupe River are designed to convey the 100-year event. However, other sections are currently being designed by the U.S. Army Corps of Engineers to convey the 100-year event and future construction depends on the availability of funds. The design basis used for this downstream area did not include any flood storage associated with Almaden Lake, but instead assumed that all flow passed through Almaden Lake as if constrained to a channel, similar to that proposed under the Project. Therefore, the Project would be consistent with existing flood design, and 100-year flood flows would be safely conveyed by existing, available downstream conveyance. Therefore, operational period impacts associated with the placement of structures that could interfere with flood flows would be **less than significant**.

Mitigation Measures

> **Mitigation Measure 3.K-3: *Final Siting of Sheet Pile System.*** Prior to the initiation of construction, the District and/or its contractors shall determine the final siting of the temporary sheet pile system based on a hydrologic assessment during design. The design shall site all sheet piles needed for Project construction to ensure that sufficient capacity would be available in the temporary creek system to convey up to a 100-year storm event (i.e., approximately 8,250 cfs).

Significance after Mitigation: Less than Significant. Compliance with Mitigation Measure 3.K-would ensure that adequate capacity is available in Alamitos Creek to convey major storm events.

3.K.4 References

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3.L Noise

This section describes the environmental and regulatory setting of the Project site and surrounding area with respect to noise and vibration, and includes an analysis of impacts related to noise and vibration from the Project. For the purposes of this assessment, the fundamentals of acoustics and environmental noise, the baseline for determining environmental impacts (including noise measurements presented in **Appendix F**), the criteria used for determining the significance of environmental impacts, and impacts and appropriate mitigation measures associated with construction, operation, and maintenance are discussed. If needed, District best management practices (BMPs) and mitigation measures to avoid or reduce significant impacts are also identified.

3.L.1 Fundamentals of Acoustics, Environmental Noise, and Vibration

Sound, Noise, and Acoustics

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). Noise is generally defined as unwanted sound (i.e., loud, unexpected, or annoying sound). Acoustics is defined as the physics of sound. In acoustics, the fundamental scientific 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 determine the sound level and characteristics of the noise perceived by the receiver. Acoustics addresses primarily the propagation and control of sound.

Frequency

The number of sound pressure peaks travelling past a given point in a single second is referred to as the frequency, expressed in cycles per second or Hertz (Hz). A given sound may consist of energy at a single frequency (pure tone) or in many frequencies over a broad frequency range (or band). Human hearing is generally affected by sound frequencies between 20 Hz and 20,000 Hz.

Amplitude

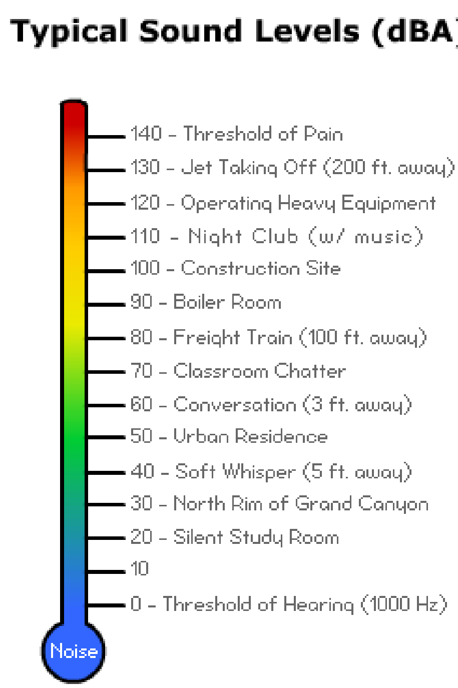
The amplitude of pressure waves generated by a sound source determines the perceived loudness of that source. Sound pressure amplitude is measured in micro-Pascals (μPa). One μPa is approximately one hundred billionths of normal atmospheric pressure. Sound pressure amplitudes for different kinds of noise environments can range from less than 100 μPa to 100,000,000 μPa. Because of this huge range of values, sound is rarely expressed in terms of pressure. Instead, a logarithmic scale is used to describe sound pressure level (SPL) in terms of decibels (dB). The threshold of human hearing (near total silence) is approximately 0 dB which corresponds to 20 μPa.

Addition of Decibels

Because decibels are logarithmic units, SPL cannot be added or subtracted through ordinary arithmetic means. Under the decibel scale, a doubling of sound energy corresponds to a 3 dB increase. In other words, when two sources are each producing sound of the same loudness, the resulting sound level at a given distance would be approximately 3 dB higher than one of the sources under the same conditions. For example, if one automobile produces an SPL of 70 dB when it passes an observer, two cars passing simultaneously would not produce 140 dB – rather they would combine to produce 73 dB. Under the decibel scale, three sources of equal loudness together produce a sound level of approximately 5 dB louder than one source, and ten sources of equal loudness together produce a sound level of approximately 10 dB louder than the single source.

A-Weighted Decibels

Figure 3.L-1 illustrates sound levels associated with common sound sources. The perceived loudness of sounds is dependent on many factors, including SPL and frequency content. However, within the usual range of environmental sound levels, perception of loudness is relatively predictable, and can be approximated by frequency filtering using the standardized A-weighting network. There is a strong correlation between A-weighted sound levels (expressed as dBA) and community response to noise. For this reason, the A-weighted sound level has become the standard descriptor for environmental noise assessment. All noise levels reported in this section are in terms of A-weighting.



SOURCE: OSHA, 2016

Figure 3.L-1
Decibel Scale and Common Noise Sources

Human Response to Changes in Noise Levels

As discussed above, doubling sound energy results in a 3 dB increase in sound. However, given a sound level change measured with precise instrumentation, the subjective human perception of a doubling of loudness will usually be different than what is measured.

Under controlled conditions in a laboratory setting, the trained, healthy human ear is able to discern 1 dB changes in sound levels when exposed to steady, single-frequency (“pure-tone”) signals in the mid-frequency range (1,000 Hz–8,000 Hz). In typical noisy environments, changes in noise of 1 to 2 dB are generally not perceptible. However, it is widely accepted that people are able to begin to detect sound level increases of 3 dB in typical noisy environments. Further, a 5 dB increase is generally perceived as a distinctly noticeable increase, and a 10 dB increase is generally perceived as a doubling of loudness. Therefore, a doubling of sound energy that would result in a 3 dB increase in sound pressure level would generally be perceived as barely detectable. Refer to **Table 3.L-1** for the approximate relationship between increases in environmental noise level and human perception.

TABLE 3.L-1
APPROXIMATE RELATIONSHIP BETWEEN INCREASES IN ENVIRONMENTAL NOISE LEVEL AND HUMAN PERCEPTION

Noise level increase, dB	Human perception (typical)
up to about 3	not perceptible
about 3	barely perceptible
about 6	distinctly noticeable
about 10	twice as loud
about 20	four times as loud

SOURCE: Caltrans, 2013a.

Noise Descriptors

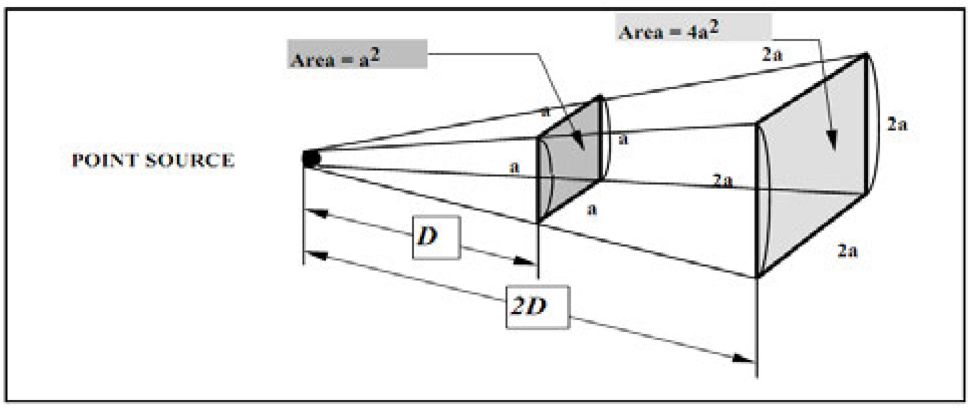
Noise in our daily environments fluctuates over time. Some fluctuations are minor, but some are substantial. Some noise levels occur in regular patterns, but others are random. Some noise levels fluctuate rapidly, but others slowly. Some noise levels vary widely, but others are relatively constant. Various noise descriptors have been developed to describe time-varying noise levels. The following are the noise descriptors most commonly used in environmental noise analysis, and are applicable to this study:

- **Equivalent Sound Level (L_{eq}):** The L_{eq} represents an average of the sound energy occurring over a specified time period. In effect, the Leq is the steady-state sound level containing the same acoustical energy as the time-varying sound that occurs during the same period. The 1-hour, A-weighted equivalent sound level (Leq[h]) is the energy average of A-weighted sound levels occurring during a 1-hour period, and used for noise impact determinations by the California Department of Transportation (Caltrans) and the Federal Highway Administration (FHWA).

- **Maximum Sound Level (L_{max}):** The Lmax is the highest instantaneous sound level measured during a specified period.
- **Day-Night Average Level (DNL)**: The DNL is the energy-average of A-weighted sound levels occurring over a 24-hour period, with a 10 dB penalty applied to A-weighted sound levels occurring during nighttime hours (10 p.m.-7 a.m.).

Sound Propagation

Sound from a localized source (i.e., point source) propagates uniformly outward in a spherical pattern; therefore, this type of propagation is called spherical spreading. The sound level attenuates (or decreases) at a rate of 6 dB for each doubling of distance from a point/stationary source as its energy is continuously spread out over a spherical surface (see **Figure 3.L-2**).



SOURCE: Caltrans, 2013a

Figure 3.L-2
Point Source Propagation (Spherical Spreading)

Vibration

Vibration is an oscillatory motion through a solid medium in which the motion's amplitude can be described in terms of displacement, velocity, or acceleration. There are several different methods that are used to quantify vibration. The peak particle velocity (PPV) is defined as the maximum instantaneous peak of the vibration signal and is typically expressed in units of inches per second (in/sec). The PPV is most frequently used to describe vibration impacts to buildings. The root mean square (RMS) amplitude is most frequently used to describe the affect of vibration on the human body. The RMS amplitude is defined as the average of the squared amplitude of the signal. Decibel notation (VdB) is commonly used to describe RMS. The decibel notation acts to compress the range of numbers required to describe vibration (FTA, 2006). Typically, ground-borne vibration generated by man-made activities attenuates rapidly with distance from the source of the vibration.

3.L.2 Setting

The Project site is located south of the San Francisco Bay within the City of San José, south of State Route 85 (SR 85). The study area includes Almaden Lake and Almaden Lake Park, a 65-acre public access Park. The Park and Almaden Lake support a variety of recreational activities on the east and west sides of the Park. A portion of the west side of the Park is also considered a wildlife sanctuary. The existing island located in the south-central portion of the lake is closed to public access. The Project area also includes pipeline alignments extending north and south of the Park, and access routes and a staging area to the north of Coleman Road.

Adjacent to the Project site are a variety of land uses which are also included in the study area. North of the Project site is Coleman Road, the residential community of Almaden Lake Village, the Santa Clara Valley Water District (District) Headquarters as well as the Guadalupe River and Los Alamitos Percolation Pond. To the east is Winfield Boulevard, the residential community of Lakeview Terrace, and Almaden Lake Apartments. Directly south of the Park is the Almaden Valley Animal Hospital, the Almaden Valley (Plant) Nursery, Boulder Ridge Golf Club, Almaden Hill Estates, and the Los Alamitos Creek. To the west is the Almaden Expressway and a residential community named the Almaden Villas. The Almaden Villas are separated from the Project site by a five- to six-foot high concrete wall that provides a noise barrier along Almaden Expressway.

Sensitive Receptors

In general, residences, schools, hotels, hospitals, and nursing homes are considered to be the most sensitive to noise. Places such as churches, libraries, and cemeteries, where people tend to pray, study, and/or contemplate, are also sensitive to noise. Commercial and industrial uses are considered the least noise-sensitive.

The sensitive receptors in the immediate vicinity of the Project site are the surrounding residential developments, including Almaden Lake Village to the north of Coleman Road, Lakeview Terrace and Almaden Lake Apartments to the east, Almaden Hills Estate to the south of the Park, and Almaden Villas to the west. There is a senior housing complex called Le Mirador Senior Apartments, located 600 feet northwest of the main Project area. There are no schools identified within 1,000 feet of the main Project area; and although Pioneer High School is located within 700 feet of Alignment 2 of the transfer pipeline to the Los Alamitos Percolation Pond, which runs north along Almaden Expressway, the nearest classroom at the high school is approximately 2,000 feet from Alignment 2. The residences at Almaden Lake Village would be as close as approximately 200 feet from on-site activities at the lake, and within 30 feet of the truck access route to/from the Alamitos Creek Trail. The transfer pipeline to the Los Alamitos Percolation Pond would be located as close as 100 feet from residences along the west side of Almaden Expressway, and the transfer pipeline from the Almaden Valley Pipeline would be located as close as approximately 30 feet to residences along Crossview Circle.

Existing Ambient Noise Conditions

Noise sources around the Project site include a variety of birds, distant overhead aircraft, vehicles on adjacent roadways, and voices of nearby residents. To quantify the existing ambient noise environment in the Project vicinity, short-term (15-minute) ambient noise level measurements were conducted at locations to the north, west, and east of the Project site.

Figure 3.L-3 shows the ambient noise level measurement locations (sites). These sites were chosen to best represent the ambient noise environments at the closest noise-sensitive uses to the Project site. Due to similar environments, Noise Monitoring Locations 3 and 4 also represent existing conditions at residences south-southwest of the Project site near Almaden Expressway and south-southeast of Almaden Lake near the Almaden Valley Pipeline Alignment, respectively. **Table 3.L-2** presents the ambient noise measurement results.

Figure 3.L-3
Noise Level Measurement Locations

TABLE 3.L-2
SUMMARY OF AMBIENT NOISE LEVEL MEASUREMENT RESULTS

Monitoring Location	Description of Monitoring Location	Monitoring Results (dBA)	
		L_{eq}	L_{max}
1	Northwest corner of Almaden Lake Village off of Coleman Road.	52.0	67.8
2	Behind Le Mirador Senior Apartments near the intersection of Almaden Expressway and Coleman Road.	55.4	78.7
3	Empty lot adjacent to Porto Alegre Court and Almaden Expressway.	71.8	79.7
4	Terrace View Drive off of Winfield Boulevard.	59.2	76.4

NOTES: dBA = A-weighted decibels. Measurements were short-term, collected over 15-minute periods on Friday, September 9, 2016, between 10:30 a.m. to 1:00 p.m.

SOURCE: Appendix F.

Short-term, daytime ambient noise level measurements were completed on Friday, September 9, 2016, between 10:30 a.m. and 1:00 p.m. Atmospheric conditions during the measurement session included daytime temperatures in the low to mid 70s °F, average winds were three to six miles per hour (mph) and the relative humidity was between 49 percent to 57 percent.

Ambient noise level measurements were completed using a Metrosonics, Inc. db-308 sound level meter equipped with a ½-inch outdoor microphone. The measurement system represents Type 2 (Class 2) instrumentation. The meter was calibrated immediately prior to the start of the survey using a Metrosonics, Inc. Model DL304 calibrator to ensure the accuracy of the measurements. The equipment used meets all pertinent specifications of the American National Standards Institute (ANSI) for Type 2 sound level meters (ANSI S1.4). Based on the monitoring results, the highest noise levels were from vehicles on Almaden Expressway at location #3 in an empty lot adjacent to Porto Alegre Court and Almaden Expressway west of the Project site at the Almaden Villas development. Conversely, the lowest noise levels were present at location #1 in the northwest corner of Almaden Lake Village off of Coleman Road.

In addition to short-term noise measurements, baseline daytime traffic noise levels were calculated for Winfield Boulevard and Coleman Road, the two roadways that would be most impacted by the Project's construction-related traffic. The traffic noise levels were calculated using algorithms from the Federal Highway Administration (FHWA)'s Traffic Noise Model Technical Manual and baseline traffic volume data obtained from the Project Transportation Report (Fehr and Peers, 2016). **Table 3.L-3** presents the estimated ambient daytime traffic noise levels at 60 feet and 100 feet from the centerline of these roadways, respectively, to the nearest residential receptor.

TABLE 3.L-3
EXISTING TRAFFIC NOISE LEVELS MODELED FOR AREA ROADWAYS

Roadway Near Project	Daytime L_{eq} dBA (8:00 a.m. – 5:00 p.m.)
Winfield Boulevard	58.1
Coleman Road	62.4

NOTES: dBA = A-weighted decibels. Based on traffic measurements collected Thursday, June 2, 2016.

SOURCE: Appendix F.

3.L.3 Regulatory Setting

The Project falls under the jurisdiction of many local, state, and federal agencies with respect to specific aspects of planning, construction, restoration, and management. A summary of applicable key laws, regulations, and policies related to noise and vibration is presented below.

Federal Regulations

Occupational Safety and Health Act

Under the Occupational Safety and Health Act of 1970 (29 USC §651 et seq.), the U.S. Department of Labor, Occupational Safety and Health Administration (OSHA) adopted regulations (29 CFR §1910.95) designed to protect workers against the effects of occupational noise exposure. These regulations list limits on noise exposure levels as a function of the amount of time during which the worker is exposed (see **Table 3.L-4**). The regulations further specify requirements for a hearing conservation program (§1910.95(c)), a monitoring program (§1910.95(d)), an audiometric testing program (§1910.95(g)), and hearing protection §1910.95(i)). There are no federal laws governing community noise.

TABLE 3.L-4
OSHA-PERMISSIBLE NOISE EXPOSURE STANDARDS FOR WORKERS

Duration of Noise (hours/day)	A-Weighted Noise Level (dBA)
8	90
6	92
4	95
3	97
2	100
1.5	102
1	105
0.5	110
0.25 or less	115

SOURCE: OSHA, 1974.

Although no federal community noise regulations exist, the U.S. EPA has promulgated noise guidelines. The U.S. EPA guideline recommends a DNL of 55 dB or less to protect the public from the effects of broadband environmental noise outdoors in residential areas and other outdoor areas where people spend widely varying amounts of time and other places in which quiet is a basis for use (U.S. EPA, 1974).

Federal Transit Administration Guidelines

The Federal Transit Administration (FTA) has issued guidance on how to assess noise impacts from construction related activities in its Transit Noise and Vibration Impact Assessment report (FTA, 2006). FTA's guidance is designed to be used by project sponsors seeking to evaluate noise and vibration impacts during the environmental review process. While the document focuses primarily on operation of transportation projects, it also provides guidance on the use of heavy machinery and associated sound levels during construction, including the types of equipment that would be deployed under the Project. FTA's guidance also describes a range of measures for controlling excessive noise and vibration.

State Regulations

California Government Code §65302 encourages each local government entity to implement a noise element as part of its general plan. In addition, the California Governor's Office of Planning and Research has developed guidelines for preparing noise elements, which include recommendations for evaluating the compatibility of various land uses as a function of community noise exposure. Furthermore, the California Occupational Safety and Health Administration (Cal/OSHA) has promulgated Occupational Noise Exposure Regulations (Title 8 CCR §5096) that set employee noise exposure limits. These standards are equivalent to the federal OSHA standards described above.

Local Policies

Envision San José 2040 General Plan

The following are goals and policies of City of San José's *Envision San José 2040 General Plan* (General Plan) that may be applicable to the project (City of San José, 2018).

Goal EC-1.1: Community Noise Levels and Land Use Compatibility

Policy EC-1.7. Require construction equipment/operations within San José to use best available noise suppression devices and techniques and limit construction hours near residential uses per the City's Municipal Code (Section 20.100.450). The City considers significant construction noise impacts to occur if a project located within 500 feet of residential uses or 200 feet of commercial or office uses would:

- Involve substantial noise generating activities (such as building demolition, grading, excavation, pile driving, use of impact equipment, or building framing) continuing for more than 12 months.

For large or complex projects, a construction noise logistics plan that specifies hours of construction, noise and vibration minimization measures, posting or notification of construction schedules, and designation of a noise disturbance coordinator who would respond to neighborhood complaints will be required to be in place prior to the start of construction and implemented during construction to reduce noise impacts on neighboring residents and other uses.

Goal EC-2: Vibration. Minimize vibration impacts on people, residences, and business operations.

Policy EC-2.3. Require new development to minimize vibration impacts to adjacent uses during demolition and construction. A vibration limit of 0.20 in/sec PPV will be used to minimize the potential for cosmetic damage at buildings of normal conventional construction.

City of San José Municipal Code

The City of San José Municipal Code establishes noise exposure limits for stationary noise sources (non-transportation sources) and specifies hours for project construction (City of San José, 2016):

Sections 20.20.300, 20.30.700, 20.40,600, and 20.50.300. These sections of the City's Municipal Code establish performance standards for noise exposure associated with stationary/non-transportation sources at the property line of noise-sensitive uses. Specifically, noise exposure is limited to 55 dB, 60 dB, and 70 dB at the property line of residential, commercial, and industrial receivers. Although the Code is not explicit with respect to the acoustical descriptor assigned to these noise levels, it is a reasonable interpretation that these levels may be applied to an hourly average noise level (Hourly Leq). This assumption is consistent with other jurisdictions in the Bay Area and northern California.

Section 20.100.450. Hours of construction within 500 feet of a residential unit

A. Unless otherwise expressly allowed in a development permit or other planning approval, no applicant or agent of an applicant shall suffer or allow any construction activity on a site located within 500 feet of a residential unit before 7 a.m. or after 7 p.m., Monday thru Friday, or at any time on weekends.

B. Without limiting the scope of Section 20.100.310, no applicant or agent of an applicant shall suffer or allow any construction activity on a site subject to a development permit or other planning approval located within 500 feet of a residential unit at any time when that activity is not allowed under the development permit or planning approval.

C. This section is applicable whenever a development permit or other planning approval is required for construction activity.

3.L.4 Impacts and Mitigation Measures

Significance Criteria

Implementation of the Project would have a significant impact relating to noise or vibration if it would 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;
- Generation of excessive groundborne vibration or groundborne noise levels;
- For a project located within the vicinity of a private airstrip or an airport land use plan area, or, where such a plan has not been adopted, in an area within two miles of a public airport or public use airport, where the project would expose people residing or working in the area to excessive noise levels.

Approach to Analysis

This section addresses noise and vibration impacts associated with construction and operation of the Project with regard to potential effects on noise-sensitive receptors, and identifies mitigation measures necessary to reduce the intensity of significant impacts.

The following analysis approach is applied to determine the level of impact associated with the Project.

Project Construction Equipment Noise and Vibration (Short-term)

The City does not offer, as part of its Noise Element of the General Plan or Municipal Code, any quantitative criteria for the determination of construction noise impacts at neighboring noise-sensitive uses. The City considers significant construction noise impacts requiring heavy machinery for more than 12 months (continuous) to be significant at residential uses within 500 feet and commercial uses within 200 feet of the construction. As described in Section 3.L.2, there are residences within 500 feet to the north, east, and west of the Project site and there are commercial uses within 200 feet to the south of the Project site. To determine whether the Project would result in an environmental noise impact in terms of generating a substantial temporary or permanent increase in ambient noise levels in the vicinity of the Project, construction-related noise levels were evaluated relative to the FTA's construction noise assessment criteria, which has identified a daytime hourly L_{eq} of 90 dBA as a noise level from on-site construction activities where adverse community reaction could occur (FTA, 2006).

In accordance with General Plan Policy EC-2.3, Project construction vibration exposure at neighboring acoustically sensitive uses would be considered significant if it would exceed 0.20 in/sec PPV. This criterion is considered at locations where Project construction requires the operation of heavy, vibration-causing equipment (e.g., pile driving).

Project Construction Traffic Noise Levels (Short-term)

Project construction-related traffic noise exposure increases were assessed using traffic volume data from the Project Transportation Report (Fehr and Peers, 2016) and the Santa Clara County Official Road Book (Santa Clara County, 2016). Baseline and Baseline plus Project traffic volumes were used to derive respective daytime average noise levels. The City does not have a quantitative threshold of significance for short-term noise levels related to traffic noise. However, as discussed in Section 3.L.1, a 10 dB increase is generally perceived as twice as loud. Therefore, the District has determined that construction-related traffic noise increases of greater than 10 dB would be considered a significant impact to nearby residences.

Project Operational Noise and Exposure to Noise-sensitive Receptors (Long-term)

As established in the City's Municipal Code, project-related operational noise exposure exceeding 55 dB DNL at the property line at residential uses and 60 dB DNL at the property line at commercial uses in the Project vicinity would be considered significant. Noise exposure in excess of this threshold would not satisfy the City's determination of land-use compatibility or noise exposure quality. Therefore, this criterion is considered to be an appropriate threshold for Project-related operational noise impacts.

No Impact Significance Determinations

Based on the nature of the Project, there would be **no impact** related to the following criterion:

> ***Be located within the vicinity of a private airstrip or an airport land use plan area, within 2 miles of a public or public use airport, or in the vicinity of a private airstrip, wherein it would expose people to excessive noise levels.*** The closest

airport to the Project site is the Norman Y. Mineta San José International Airport, which is located 7.5 miles north of the Project site. The second closest airport, the Moffett Field, is located 14 miles northwest of the Project site. There are no private airstrips located within the vicinity of the Project. As such, the Project site is not located within the vicinity of a private airstrip or an airport land use plan area, or within 2 miles of a public or public use airport. Therefore, the and Project would not be affected by aircraft noise or other operations; no impact would occur, and this criterion is not analyzed further.

Impact Summary

Table 3.L-5 provides a summary of noise and vibration impacts by implementation phase (construction and operations).

TABLE 3.L-5
SUMMARY OF NOISE AND VIBRATION IMPACTS

Impact Statement	Construction	Operation
Impact 3.L-1: The Project would generate 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.	LSM	LSM
Impact 3.L-2: Project-related construction would not generate excessive vibration and groundborne noise exposure in the Project vicinity.	LS	LS

LS = Less than significant
LSM = Less than significant with mitigation

Impacts and Mitigation Measures

Impact 3.L-1: The Project would generate 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 with Mitigation)

Construction

As discussed in the Approach to Analysis section above, the City does not have quantitative criteria for assessing construction noise impacts at neighboring noise-sensitive uses. The City’s General Plan establishes that residential uses within 500 feet of construction, and commercial uses within 200 feet of construction, may be adversely affected by construction noise. Existing residences on the northern, western, and eastern sides of the Project site would be located within 500 feet of construction activities; therefore, these residences could be significantly affected by Project-related construction noise. Adherence to Section 20.100.450 of the City’s Municipal Code would ensure that Project construction would be limited to daytime hours (7 a.m. to 7 p.m.) on weekdays within 500 feet of residences, unless otherwise expressly allowed in a development permit or other planning approval, such as for potential Saturday construction activities (each phase of the Project would occur within 500 feet of residential uses).

To comply with the intent of General Plan Policy EC-1.7, the District and/or its contractors should develop and adhere to a Construction Noise Logistics Plan. If such a plan were not to be developed and implemented, the Project would be considered inconsistent with Policy EC-1.7 and the associated impact **would be significant**.

Implementation of **Mitigation Measure 3.L-1a (Construction Noise Logistics Plan)** would be required, and would ensure that the Project would be consistent with the City's applicable standards, ordinances, and the General Plan. With the development and implementation of a Noise Logistic Plan as required by Mitigation Measure 3.L-1a the Project would be consistent with Policy EC-1.7 and other applicable local standard, and this impact would be **less that significant with mitigation**.

The following analysis was conducted to determine whether the Project would generate a substantial temporary increase in ambient noise levels in the vicinity of the Project that would exceed recommendations of other applicable agencies. Although there are no applicable local policies or standards to judge the significance of short-term daytime construction noise levels in the City of San José, the District has decided to utilize the FTA's construction noise assessment criteria, which has identified a daytime hourly L_{eq} of 90 dB as a noise level from on-site construction activities where adverse community reaction could occur (FTA, 2006).

Noise production from construction equipment varies greatly depending on factors including the specific equipment being used (including model, age, and condition), the number of pieces of equipment being used concurrently, and the activity being performed. Noise associated with heavy equipment using diesel engines often dominates the noise environment in the vicinity of a construction site. Stationary sources such as generators and pumps may also produce a significant contribution. **Table 3.L-6** provides a list of construction equipment that would be utilized under the Project, and the typical noise levels associated with that equipment. As discussed previously, L_{max} refers to the maximum noise generated by a piece of equipment operating at full power at a given distance (here, 50 feet). However, to account for variability in operating power and activity from the equipment used by the Project, the L_{eq} at 50 feet descriptor is also provided.

Noise levels from all construction phases of the Project were quantified using the L_{eq} values from Table 3.L-6 to determine the loudest exposure to nearby residences, as shown in **Table 3.L-7**.

Construction activities at the Almaden Lake site would occur as close as 200 feet to 450 feet to the nearest residences. At these distances, the maximum noise exposure is estimated to range from 58 dBA to 73 dBA L_{eq}. This sound intensity would be below the FTA hourly L_{eq} of 90 dB limit for where adverse community reaction could occur. The loudest noise exposure at residences would be associated with construction of the transfer pipeline that would connect Almaden Lake to the Almaden Valley Pipeline as well as repaving and revegetation activities that would be required after the pipeline is installed, because some residences along Crossview Court would be as close as approximately 30 feet to these activities. The noise exposure level at these residences would be up to 89 dBA as shown in Table 3.L-7. Construction activities associated with the transfer pipeline from Almaden Lake to the Los Alamitos Percolation Pond would occur as close as 100 feet to the nearest residences, which would be exposed to noise levels as high as 77 dBA L_{eq}. The maximum duration of construction activity in the vicinity of any one sensitive receptor associated with these pipeline components is expected to be approximately 2 weeks. These sound intensities would be below the FTA threshold for construction noise and the **impact from construction noise would be less than significant**.

TABLE 3.L-6
TYPICAL NOISE LEVELS FROM CONSTRUCTION EQUIPMENT

Construction Equipment	Noise Exposure Level, dB L_{max} @ 50 Feet[1]	Noise Exposure Level, dB L_{eq} @ 50 Feet[2]
Compactor	83	76
Concrete Mixer Truck	79	75
Concrete Saw	90	83
Crane	81	73
Dozer	82	78
Excavator	81	77
Generator	81	78
Grader	85	81
Water Truck	79	75
Loader	79	75
Pump	81	78
Paver	77	74
Plate Compactor	83	76
Roller	80	73
Soil Mix Drill Rig	80	77
Vibratory Pile Driver	101	94

NOTES: 1. L_{max} is the highest instantaneous sound level measured during a specified period.
2. L_{eq} represents an average of the sound energy occurring over a specified time period and reflect equipment-specific usage rates.

SOURCES: FTA, 2006; FWHA, 2008.

With respect to traffic noise level increases associated with construction-related traffic, Table 3.L-3 presented the baseline daytime Leq for the residences nearest to Winfield Boulevard and Coleman Road (for segments both south and north of Almaden Lake Village), the three roadway segments that would be most impacted by the Project's construction-related traffic. As discussed in Section 2.E.3, Summary of Construction Equipment/Crews/ Duration, construction activities would typically occur between the hours of 7 a.m. and 7 p.m., Monday through Friday. Construction activities could also occur on Saturdays from 8 a.m. to 5 p.m., if permitted by the City. However, for the purpose of considering traffic noise impacts, this analysis considers the potential for all Project-related daily truck and automobile trips to occur between the hours of 8 a.m. to 5 p.m. In addition, the traffic noise modeling assumes that all worker and truck trips would occur along one of these road segments, so the modelled noise for each road segment represents a worst-case scenario for that road.

TABLE 3.L-7
ANTICIPATED CONSTRUCTION PERIOD NOISE LEVELS AT SENSITIVE RECEPTOR LOCATIONS

Construction Activity	Nearest Sensitive Receptor Distance (feet)	Noise Exposure Level (dBA L_{eq}) at Nearest Sensitive Receptor
Activities at Almaden Lake		
Creek Diversion, Lake Draining, Cofferdam Installation	400	71.6
Levee Foundation and Soil Cement	200	73.3
Working Surface Vegetation / Debris Removal	250	66.7
Expanded and New Islands Construction	450	62.7
Clay Cap for Lake and Levee Foundation Area	250	66.1
Alamitos Creek West Bank Shore Grading	400	60.1
New Park Area Construction	300	64.1
Dewatering	300	58.4
Pipeline-related Activities		
Transfer Pipeline from Almaden Valley Pipeline	30-50*	88.7
Repaving and/or Revegetation	30	85.7
Transfer Pipeline to Los Alamitos Percolation Pond	100-120*	76.5

* Pipeline construction activities would occur as a linear spread of equipment. When closest to residences, it is anticipated that the five modeled pieces of equipment would be spread along the Transfer Pipeline from Almaden Valley Pipeline construction corridor at distances that would range from 30 feet to 50 feet and along the Transfer Pipeline to Los Alamitos Percolation Pond at distances that would range from 100 feet to 120 feet.

SOURCE: Appendix F.

Table 3.L-8 presents the ambient and the "Plus Project" L_{eq} daytime noise levels as well as the noise increase for these residential receptors for the time period when the Project's peak construction-related traffic would occur. A 10 dB increase is generally perceived as a doubling of noise and has been used as a determinant of significance for construction-related traffic. If all Project construction traffic would access the site via the Guadalupe River Trail from Coleman Road, north of Almaden Lake Village, the temporarily increase in the L_{eq} daytime traffic noise levels at Almaden Lake Village would be 18.1 dBA, which would exceed the increase over ambient threshold of 10 dBA. This segment of Coleman Road is currently used to access a park and ride lot and the Almaden Lake Village complex; and is occasionally used by City maintenance vehicles. If all Project construction traffic would access the site via Winfield Boulevard, south of Coleman Road, the temporarily increase in the L_{eq} daytime traffic noise levels at adjacent residences would be 10.3 dBA, which would exceed the increase over ambient threshold of 10 dBA. If all of the Project construction traffic would access the site via Coleman Road, south of Almaden Lake Village, the temporarily increase in the L_{eq} daytime noise levels adjacent to Coleman Road, south of Almaden Lake Village would be 4.2 dBA, which would be less than the increase over ambient threshold of 10 dBA. Refer to Appendix F for the construction equipment and traffic noise calculations used to estimate these values.

TABLE 3.L-8
BASELINE PLUS PROJECT DAYTIME EQUIVALENT NOISE LEVELS FOR RESIDENCES NEAREST TO AFFECTED PROJECT ROADWAYS

Roadway Near Project	L_{eq} Daytime Baseline dBA (8:00 a.m. - 5:00 p.m.)	L_{eq} Daytime Baseline Plus Project dBA (8:00 a.m. - 5:00 p.m.)	dBA Increase from Project
Coleman Road (south of Almaden Lake Village)	62.4	66.6	4.2
Coleman Road (north of Almaden Lake Village)	52.0*	70.1**	18.1
Winfield Boulevard	58.1	68.4	10.3

NOTES: dBA = A-weighted decibels.
* The ambient noise level at Coleman Road (north of Almaden Village) was measured (see Table 3.L-2). The other ambient noise levels in this table were estimated using algorithms from the Federal Highway Administration (FHWA)'s Traffic Noise Model Technical Manual and baseline traffic volume data obtained from the Project Transportation Report (Fehr and Peers, 2016).
** Represents peak-hour noise levels when construction workers would commute to/from the site.

SOURCE: ESA, 2019.

Because construction of the Project would exceed the applicable threshold criteria associated with off-site traffic if all Project construction traffic would access the site via the Guadalupe River Trail from Coleman Road, north of Almaden Lake Village, or from Winfield Boulevard, south of Coleman Road, **the impact from construction traffic is considered significant**.

Implementation of **Mitigation Measure 3.L-1a** would ensure that this impact would be reduced by restricting all Project-related construction traffic to the site via the Guadalupe River Trail to worker vehicles only (i.e., no haul truck access), and by restricting hourly truck trips along Winfield Boulevard, south of Coleman Road, to no more than 70 trips per hour. Implementation of Mitigation Measure 3.L-1a would reduce the peak-hour traffic noise increase at the north side of Alameda Lake Village to approximately 1.9 dBA, and would reduce the daytime noise increase at residences adjacent to Winfield Boulevard, south of Coleman Road, to approximately 9.7 dBA. With implementation of Mitigation Measure 3.L-1a construction traffic on each of the roadway segments would be reduced to under the 10 dB threshold and the **impact would be less than significant with mitigation**.

Operation

The applicable significance thresholds for Project-related operational noise exposure is 55 dB DNL at residential uses and 60 dBA DNL at commercial uses in the Project vicinity. The Project includes two pump options for moving water from the lake to the pipeline connecting to Los Alamitos Pond. One would be a pump submerged within the lake waters, which would dissipate pump noise. However, noise from the Project's potential above ground water pump station along the northern end of the lake would generate a DNL of 61 dBA for the closest receptors at the residences in Almaden Lake Village.[1] This value is based on a pump reference noise level of 78 dBA at 50 feet, a combined noise level for two pumps at

1 The nearest sensitive receptors to the pump station would be the residences at Almaden Lake Village approximately 430 feet away.

81 dBA, continuous operation of the pumps during a 24-hour period, and pump usage factors of 50 percent. The DNL of 61 dBA exceeds the operational noise threshold for residential uses, and is therefore considered a **significant impact** related to a substantial, permanent increase in ambient noise levels in the Project vicinity.

To reduce the noise emitted by the water pump station, the Project would be required to implement **Mitigation Measure 3.L-1b (Install a Fully Enclosed Pump Station)** which requires the installation of an enclosure to house and fully enclose the pump station to reduce pump noise. To determine a conservative estimate for the noise level reduction achieved by the installation of the pump enclosure, FHWA noise reduction figures were considered. The FHWA has established that building noise reduction factors can account for a noise level reduction from 20 dB to 35 dB ranging from a light frame building with ordinary closed windows to a masonry building with double glazed closed windows, respectively (FHWA, 2011). Although the above-referenced fully-enclosed pump house would likely provide a greater noise level reduction, a conservative 10 dBA reduction was applied. Therefore, adherence to Mitigation Measure 3.L-1b would reduce noise levels from the pump station to a DNL of 51 dB, ensuring that operational noise from the Project would be below the 55 dB DNL threshold at the nearest residence, thereby minimizing and reducing operational noise impacts to **less than significant**. Refer to Appendix F for the detailed noise calculations and methods use to derive the pump station noise levels.

Other operation period activities would be limited to the use of light-duty trucks and other small equipment or tools for ongoing maintenance activities. These activities would not cause substantial noise, and would occur intermittently.

Baseline noise levels without the Project were also evaluated for Coleman Road, which is the road that separates the nearest sensitive receptors from the Project’s operational noise source. The ambient DNL for this road at the residential property line was estimated at 63 dBA, which is greater than the Project’s estimated mitigated operational noise level. In addition, based on analysis provided in Section 3.O, Transportation, Project operation would not result in an increase in traffic in the Project area, and as discussed above, would not otherwise increase noise levels relative to existing conditions, including at the nearest residential receptors. Noise impacts from maintenance vehicles would be **less than significant**.

Mitigation Measures

Mitigation Measure 3.L-1a: *Construction Noise Logistics Plan*. The District and/or its contractors shall develop and adhere to a Construction Noise Logistics Plan, in accordance with General Plan Policy EC-1.7. The Plan will specify hours of construction, noise and vibration minimization measures (e.g., use of exhaust mufflers, use of and hydraulically or electrically powered equipment, and use of noise shields, blankets, and/or enclosures), provide for / require posting and notification of residences within 500 feet of the construction site of construction schedules, and designate a noise disturbance coordinator to respond to neighborhood complaints during construction. The noise disturbance coordinator shall ensure that the Plan is implemented, and shall be available to respond to complaints during all construction work hours. All construction activities conducted within 500 feet of a residence shall be completed between the hours of 7:00 a.m. and 7:00 p.m., on weekdays; or Saturdays if permitted by the City. The Plan shall include a provision restricting all Project-related construction traffic to the site via the Guadalupe River Trail north of Almaden Lake Village to worker vehicles only (i.e., no haul truck access) and a provision restricting hourly truck trips along Winfield Boulevard, south of Coleman Road, to no more than 70 trips per hour.

Mitigation Measure 3.L-1b: *Install a Fully Enclosed Pump Station*. The District and/or its construction contractors shall be required to fully enclose the pumps at the pump station, to reduce operational noise levels. The enclosure shall fully cover all pumps, and shall be sufficient to reduce noise levels to 55 dB or lower at each residence within 500 feet of the Project site.

Impact Significance after Mitigation: Less than Significant. Mitigation Measure 3.L-1a would require the District to develop a Construction Noise Logistics Plan specifying the hours of construction, restricting construction traffic to designated areas, and establishing a noise disturbance coordinator to fully comply with the local noise ordinance and policies and to ensure that noise from construction traffic does create an increase of 10dBA or greater. Mitigation Measure 3.L-1b would ensure that noise from the pump station is less than 55 dB at adjacent residences.

Impact 3.L -2: Project-related construction would not generate excessive vibration and groundborne noise exposure in the Project vicinity. (Less than Significant)

Construction Impacts

Construction-related vibration exposure at neighboring acoustically sensitive uses would be considered significant if it would exceed a threshold value of 0.20 in/sec PPV. Project pile driving would occur a minimum of 160 feet from the nearest building structure, as discussed in Chapter 2, Project Description, the Project would deploy vibratory pile driving, rather than impact pile driving. However, in a conservative evaluation, even the use of a large impact pile driver using 80,000 foot-pound of force, and operating at distance of 160 feet from the nearest building, vibration levels would be approximately 0.13 in/sec (Caltrans, 2013b). This vibration level would be distinctly to strongly perceptible at 160 feet from the pile driver, but would be nonetheless well below the applicable threshold of 0.2 in/sec. Based on testing and associated information compiled by Caltrans (2013b), the expected vibration levels of 0.13 in/sec, occurring as frequent, intermittent events as the pile driver operates, would not be strong enough to cause damage to typical historic buildings, residential structures, or industrial/commercial buildings. Use of vibratory pile driving, rather than impact pile driving would generate substantially less groundborne vibration.

Other equipment used on site could also cause groundborne vibration. For example, large bulldozers and semi-trucks would be used across the site during the construction process. However, vibration associated with operation of these types of equipment are limited. Conservatively assuming a minimum distance of 25 feet (actual distance would be at least

50 feet) from the area of operation of a bulldozer or large, loaded semi-truck to an existing building, a large bulldozer would result in a vibration level of 0.089 in/sec, while a loaded semi-truck would result in a vibration level of 0.076 in/sec. These amounts are well under the threshold of 0.2 in/sec, and would not be expected to cause damage to nearby buildings or other features.

Therefore, nearby receptors would not be exposed to generation of excessive groundborne vibration or groundborne noise levels during construction. Impacts related to this criterion would be **less than significant**. Nonetheless, the District may use vibratory pile drivers for cofferdam installation, rather than the impact pile driver considered above.

Operation Impacts

Project operation would include ongoing operation of a water pump station, as well as occasional light truck trips during Project maintenance. These activities would not generate perceptible groundborne vibration or groundborne noise. Therefore, Project operation impacts associated with groundborne vibration and groundborne noise would be **less than significant**.

Mitigation Measures

None required.

3.L.5 References

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Santa Clara, County of, 2016 *Official County Road Book, 2016 Edition.* Available: https://www.sccgov.org/sites/rda/info/Pages/book.aspx.

U.S. Environmental Protection Agency (U.S. EPA), 1974, Title 29 CFR §1910.95, Table G-16.

3.M Public Services

This section describes the environmental and regulatory setting of the Project site and surrounding area with respect to public services, and includes an analysis of impacts to those resources from the Project. For the purposes of this assessment, public services include fire protection, law enforcement, schools, parks, and other public facilities in the City of San José. If needed, District best management practices (BMPs) and measures to avoid or reduce significant impacts are also identified.

3.M.1 Environmental Setting

Almaden Lake is located within and surrounded by Almaden Lake Park (Park), which is located in Santa Clara County, in the southern portion of the City of San José (City). The Project area includes Almaden Lake and Almaden Lake Park, Winfield Warehouse, the District's headquarter site, and a pipeline corridor south of the lake in the vicinity of the Los Alamitos Creek Trail for construction activities.

Fire Protection

The San José Fire Department (SJFD) provides fire protection services to the Project vicinity. The SJFD serves the City and other Santa Clara County areas with a total population that exceeds 1 million. The SJFD responds to approximately 74,000 calls for service each year from 33 fire stations and is a high-volume, high-performance, full-service fire department. The SJFD is the emergency service provider for a number of high-hazard occupancies, including an international airport, a municipal airport, 7 major hospitals, the SAP Center (indoor arena), San José State University, three super regional malls, and 516 high-rise structures (City of San José, 2015a). The nearest fire station is San José Fire Department Station 17, located approximately 0.75 mile northwest of the Project site on Blossom Hill Road (City of San José, 2015c).

Law Enforcement

The San José Police Department (SJPD) provides law enforcement services to the Project vicinity. The SJPD is administered by a command staff including the Chief, Assistant Chief, and four Deputy Chiefs, presiding over an Operations Command divided into four Bureaus. SJPD is authorized to employ approximately 1,400 employees including both sworn and non-sworn. Department employees are assigned to one of four Bureaus comprised of 11 divisions with more than 50 specialized units and assignments (SJPD, 2015).

Schools

The Project site is located within the San José Unified School District (SJUSD), which operates 41 schools. There are 25 elementary schools, two K-8 schools, six middle schools, six high schools, and two alternative education programs. The SJUSD serves more than 32,000 students in grades PreK-12 (SJUSD, 2015). The closest school to the Project site is Pioneer High School, located 0.62 mile northwest of the Project site (SJUSD, 2014).

Parks

Almaden Lake Park supports a variety of recreational activities including pedal-boating, picnicking, hiking, bocce ball, horseshoes, dog walking, biking, basketball, and volleyball. Recreational facilities include playgrounds, picnic areas, bocce courts, paved trails, a beach area on the west shore of the lake, and an amphitheater near the southeast shore of the lake. The San José Parks, Recreation, and Neighborhood Services Department oversees operations at Almaden Lake Park in cooperation with the Santa Clara Valley Water District. The San José Parks, Recreation, and Neighborhood Services Department is responsible for parks and other recreational facilities within San José (City of San José, 2015b). See Section 3.N, Recreation, for further information on recreational resources located near the Project site.

Other Public Facilities

Other public facilities in the Project's vicinity include the Vineland Branch Library, located 1.03 miles west of the Project site (San José Public Library, 2015). Nearby medical facilities include the Samaritan Medical Care Center, located 1.95 miles northeast of the Project site, and Almaden Family Physicians, located 1.5 miles southeast of the Project site (CEP America, 2015; Stanford Health Care, 2015).

3.M.2 Regulatory Setting

Federal Regulations

There are no federal regulations governing public services that apply to the Almaden Lake Improvement Project.

State Regulations

California Master Mutual Aid Agreement

The California Master Mutual Aid Agreement is a framework agreement between the State of California and local governments that provides for aid and assistance through the interchange of services and facilities. This aid agreement includes but is not limited to the following: fire, police, medical and health, communication, and transportation services, as well as facilities to cope with issues related to rescue, relief, evacuation, rehabilitation, and reconstruction.

California Occupational Safety and Health Administration

In accordance with the California Code of Regulations, Title 8, Sections 1270 ("Fire Prevention") and 6773 ("Fire Protection and Fire Equipment"), California Occupational Safety and Health Administration (OSHA) has established minimum standards for fire suppression and emergency medical services. The standards include, but are not limited to, guidelines on the handling of highly combustible materials, requirements for the sizing of fire hoses, restrictions on the use of compressed air, access roads, and the testing, maintenance, and use of all firefighting and emergency medical equipment.

Local Regulations

There are no local regulations that pertain to the assessment of Project effects on public services.

3.M.3 Impacts and Mitigation Measures

Significance Criteria

The Project would result in significant effects related to public services if it would:

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

i) Fire protection
ii) Police protection
iii) Schools
iv) Parks
v) Other public facilities

Approach to Analysis

Methods used to assess impacts on public services included site visits to the Project area in May 2016, and review of local planning documents and maps to identify the proximity of public services to the Project site that could be directly or indirectly affected by the Project. Project-related construction and operations activities were assessed for their potential to result in direct adverse impacts on public services given the proximity of the identified public service, and the impact the Project could have on the public service.

No Impact Significance Determinations

Based on the nature of the Project, there would be **no impact** related to the following criterion:

> ***Development of the proposed Project would not result in an increase in new students for local schools, nor would it require new or physically altered school facilities to maintain acceptable performance objectives.*** The Project would not result in neighborhood population growth or residential housing that would increase the school-aged population in the Project area. Therefore, there would be no impact to local schools.

Impact Summary

Table 3.M-1 provides a summary of public services impacts by implementation phase (construction and operations).

TABLE 3.M-1
SUMMARY OF PUBLIC SERVICES IMPACTS

Impact Statement	Construction	Operation
Impact 3.M-1: Development of the proposed Project could result in an increase in calls for fire protection, police services and emergency medical response services, but would not require new or physically altered fire or police facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable performance objectives.	LS	LS
Impact 3.M-2: Development of the proposed Project could result in an increase in the use of existing neighborhood and regional parks and recreation centers, but not to the extent that substantial physical deterioration of the facilities would occur or be accelerated, nor would it cause the necessity for new or expanded facilities.	LS	LS

LS = Less than significant

Impacts and Mitigation Measures

Impact 3.M-1: Development of the proposed Project could result in an increase in calls for fire protection, police services and emergency medical response services, but would not require new or physically altered fire or police facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable performance objectives. (Less than Significant)

Construction Impacts

During construction, emergency services would be provided by the City of San José and its reciprocal partners, if needed. Construction activity is not expected to require a substantial increase in the need for emergency service providers, because the number of construction workers on site at a given time would be limited (up to 48 construction workers in overlapping construction phases anticipated at any given time). Additionally, the construction area would be entirely fenced with security fencing during construction, ensuring that access to the construction site by the public would be restricted. Because Project construction would not substantially increase demand for emergency services, it would also not meaningfully contribute to or result in a need for new or physically altered fire or police facilities. Therefore, construction impacts related to demand for fire, police, and medical response services and facilities would be **less than significant**.

Operations Impacts

During operation, the updated lake area would provide similar recreation functions as are available under existing conditions. The Project area would be re-opened for public use following construction, and would be expected to draw a similar number of people for similar activities to those of current conditions. Security lighting would not be required beyond what is already present in the Park. Therefore, long-term operation and maintenance of the Project area is not expected to substantially alter or increase demand for emergency services or facilities, in comparison to that of existing conditions. Therefore, this impact is considered **less than significant**.

Mitigation Measures

None required.

Impact 3.M-2: Development of the proposed Project could result in an increase in the use of existing neighborhood and regional parks and recreation centers, but not to the extent that substantial physical deterioration of the facilities would occur or be accelerated, nor would it cause the necessity for new or expanded facilities. (Less than Significant)

Construction Impacts

Detailed analysis of the recreational effects can be found in Section 3.N, Recreation. This section focuses on the impacts to nearby parks. Almaden Lake Park would be impacted by the temporary closure of parts of the Park during the approximately 30-month construction period. Construction of the following Project elements would temporarily affect existing use of the Almaden Lake Park: relocation of the boat house and boat launch; and expansion of the open Park area into the existing west beach and its adjacent open water area. Temporary construction fencing would be installed along the perimeter of the work area in order to restrict access to the construction area. Construction fencing would bound the anticipated disturbance area, from the southern end of Alamitos Creek, running south along the western bank of Alamitos Creek, south to the construction access point at Winfield Boulevard, and around the remaining lake areas. Installation of the Almaden Valley Pipeline connection would temporarily disrupt access to portions of the Los Alamitos Creek Trail.

Construction of the Almaden Lake improvements would result in a temporary restriction of access to the beach along the western edge of the lake, the boat house and launch, and the existing picnic area, either entirely or in phases during construction. While public access to the western edge of the lake is closed during construction, Park goers would have access to the north shoreline and the east entrance that would not be under construction. The disruption would be temporary, with construction activities starting as early as summer 2021, with an approximate duration of 30 months. The disruption may temporarily increase use of nearby parks within the Project vicinity that provide similar recreational opportunities as Almaden Lake Park, including Almaden Quicksilver County Park (5 miles south of Project site), Santa Teresa County Park (5.5 miles southeast of the Project site), and Oak Grove Park (0.44 mile west of the Project site). Within the Project vicinity, there would be sufficient park alternatives such that no single other park would be used to replace Park uses temporarily affected by Project construction. Also, any temporary, construction-related increases in use of nearby parks would be consistent with existing uses of these areas for recreation, but with a slightly higher intensity. Because the anticipated increase in park use would be temporary, similar in nature to existing use categories, and distributed across other nearby parks, the Project is not anticipated to significantly increase use of other parks, such that their facilities would be degraded, or such that new or expanded facilities would be required. Therefore, this impact is considered **less than significant**.

Operations Impacts

Operational activities associated with the Project would include the continuation of existing and ongoing maintenance activities at Almaden Lake as well as new activities such as routine vegetation management and structural maintenance activities for the levee, road and trail, creek channel, and the lake. Details on maintenance activities are provided in Chapter 2, Project Description. Detailed analysis of the recreational effects can be found in Section 3.N, Recreation. The majority of the maintenance activities are currently ongoing at the Project site.

New maintenance activities could result in temporary closures of trails or the maintenance road, when maintenance is required. Closure of trails or the maintenance road would be temporary and would not be expected to occur over more than a few weeks at any given location. Because there are multiple access points to the Park, and the impact on use of the Park during maintenance activities would be temporary and would not substantially deter Park users, maintenance activities would not substantially increase use of nearby parks or trails such that deterioration of park facilities would result. Therefore, this impact would be **less than significant**.

The Project would result in several operational improvements to the Park. The levee would be utilized as both a road for District and Park maintenance vehicles and as a pedestrian pathway. The pedestrian pathway would connect with the existing Guadalupe River Trail at the north end of the lake and with the existing Los Alamitos Creek Trail at the south end of the lake. The existing launch ramp and boat house would be relocated, and the open park area along the western shore of the lake would be expanded. These long-term improvements to the Park would support improved recreation opportunities at the Project site, and could slightly increase use of the Almaden Lake Park, in comparison to existing conditions. However, any potential increase is expected to be limited, and would be within existing and design standards for the Park. Therefore, the Project would not result in a substantial increase in use of the Park or of existing neighborhood and regional parks or recreation centers to the extent that would accelerate their physical deterioration or require new or expanded facilities, and this impact would be **less than significant**.

Mitigation Measures

None required.

3.M.4 References

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3.N Recreation

This section describes the environmental and regulatory setting of the Project site and surrounding area with respect to recreation, and includes analysis of impacts to such resources from the Project. For the purposes of this assessment, recreational resources include parks and open space in the Project vicinity. If needed, District best management practices (BMPs) and mitigation measures to avoid or reduce significant impacts are also identified.

3.N.1 Environmental Setting

The City of San José (City) features 54 miles of trails in 27 trail systems and provides nearly 200 parks (City of San José, 2011). The City's Parks, Recreation, and Neighborhood Services Department is responsible for parks and other recreational facilities within San José (City of San José, 2015d), including operation of Almaden Lake Park (Park) in cooperation with the Santa Clara Valley Water District (District).

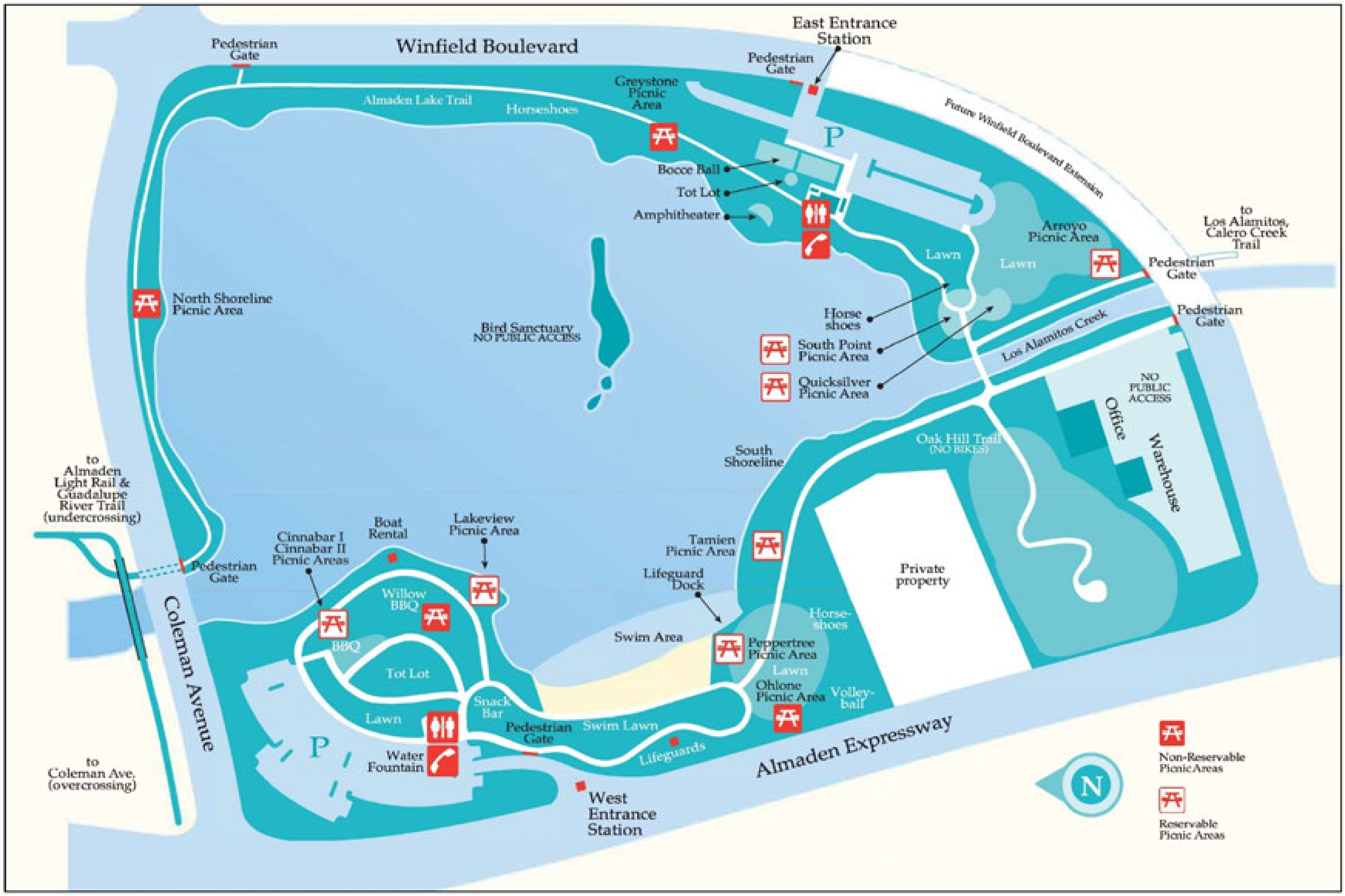
Recreational Facilities

Almaden Lake Park

Almaden Lake Park is a 65-acre facility managed by the City of San José with 32 acres of lake featuring many recreational opportunities, including pedal boating, picnicking, wildlife viewing, walking/running, biking, volleyball, horseshoes, bocce ball, and dog walking. Recreational facilities include playgrounds, picnic areas, bocce courts, paved trails, a beach area on the west shore of the lake, and a 75-seat amphitheater near the southeast shore of the lake (**Figure 3.N-1**). To support public access to the Park, two parking lots are located in the Park, one on the northwest and another on the southeast side of the Park, with restrooms adjacent to each (City of San José, 2015a, 2015c). The City is responsible for managing recreational uses at Almaden Lake such as swimming, fishing, pedal boating, picnicking, non-motorized biking, and hiking activities in accordance with all applicable legal and permitting requirements. Due to water quality concerns, the City has closed Almaden Lake to swimming since August 2010. The City allows fishing in Almaden Lake, but signage posted by the City indicates consumption of fish is not recommended.

Almaden Lake Park is divided into two sides referred to as the Eastside, which runs parallel to Winfield Boulevard, and the Westside of the Park along Almaden Expressway. A concession stand is open on a seasonal basis, and offers food and beverages (City of San José, 2015b). There are large green open lawns and picnic areas with barbeque pits. Tot lots are located at both sides of the Park and feature water play areas. However, the water feature is currently turned off due to the drought, and swimming is not permitted (City of San José, 2015c).

Paved trails within the Park include the Almaden Lake Trail adjacent to the eastern lake shore and the Oak Hill Trail along the southern end of the Park. Both trails connect to the regional trail network. In addition to supporting a variety of recreational activities, the Park also includes an existing island located in the south-central portion of the lake that supports bird populations, although no public access is provided to the island.



SOURCE: City of San José, ESA

Almaden Lake Improvement Project . 130679

Figure 3.N-1
Almaden Lake Park Recreation Features

Santa Teresa County Park

Santa Teresa County Park is a 1,627-acre park located in the Santa Teresa Hills approximately 5.5 miles southeast of the Project site. Santa Teresa County Park offers a variety of recreational opportunities, including the Santa Teresa Golf Club, a clubhouse with a restaurant and pro shop, and a banquet facility. There is a picnic area with a large barbeque pit, the historic Bernal-Gulnac-Joice Ranch and Santa Teresa Springs, an archery range, and the Pueblo Day Use area that includes parking and an equestrian staging area (Santa Clara County, 2016). The Los Alamitos Creek Trail runs between Almaden Lake Park and Santa Teresa County Park.

Almaden Quicksilver County Park

Almaden Quicksilver County Park is a 4,163-acre park occupying the majority of Capitancillos Ridge approximately 5 miles south of the Project site. Almaden Quicksilver County Park is the site of over 135 years of mining activities and the former home to more than 1,800 miners and their families. The park includes over 37 miles of hiking trails, including 30 miles of equestrian trails and about 17 miles of biking trails. All trails in the park are open to on-leash dog walking. Almaden Quicksilver County Park has picnic tables scattered throughout the park adjacent to the trails (Santa Clara County, 2018). The historic New Almaden Quicksilver Mines are in Almaden Quicksilver County Park, and are the source of the mercury accumulating in Almaden Lake.

Oak Grove Park

Approximately 0.44 mile west of the Project site is Guadalupe Oak Grove Park, a 63-acre park dominated by an old oak forest, located in the Almaden Valley area of San José. The park is predominantly used for hiking, walking, running, picnicking, and bird and wildlife watching, with biking allowed on the flatland trails (WayMarking, 2016).

Boulder Ridge Golf Club

The Boulder Ridge Golf Club is a 300-acre property located southeast of the Project site. The Boulder Ridge Golf Club is located above Santa Clara Valley in San José, offering views of the Silicon Valley and the Santa Cruz Mountain Range. The Pavilion Event Center provides space for ceremonies and receptions (The Golf Club at Boulder Ridge, 2016).

Existing Recreation Opportunities

As noted above, the Park provides a broad range of recreational opportunities. Following is an inventory of such opportunities in 2017.

The Park includes seven picnic areas for reservation by fee (see **Table 3.N-1**). The Park also has three open-use picnic areas available on a first come, first served basis: North Shoreline (Eastside), Greystone (Eastside), and Willow (Westside) (Figure 3.N-1).

Active recreational opportunities include two horseshoe pits, two bocce ball courts, volleyball area, and two playgrounds (i.e., tot-lots). The playgrounds include water play features, although they have not been operated recently due to drought concerns.

TABLE 3.N-1
ALMADEN LAKE PICNIC AREAS

Picnic Site	Location	Capacity	Amenities
Arroyo	Eastside	200	2 large barbeques 4 small barbeques 20 tables 2 sinks 2 prep tables
Cinnabar I & II	Westside	180	7 barbeques 18 tables
Lakeview	Westside	40	1 medium barbeque 4 tables
Peppertree[a]	Westside	60	1 large barbeque 6 tables
Quicksilver	Eastside	190	1 large barbeque 19 tables
South Point	Eastside	190	2 barbeques 19 tables
Tamien	Westside	60	1 large barbeque 6 tables

[a] The Ohlone picnic area (reservable) is adjacent to Peppertree picnic area, though it is not identified on the City's list.

Recreational opportunities for dogs and their owners are limited to the Eastside of the Park. Leash laws apply at the Park. Dogs are not allowed on the Westside of the Park.

Due primarily to poor water quality conditions in the lake, swimming and boating are currently prohibited. However, on-site pedal boat rentals have been available on a seasonal basis. Two boat launch ramps are found on the lake's north and east shores, but they are not for public use. A sand beach area is located on the lake's west shore.

Almaden Lake Trail circles the lake. It is a level paved bi-directional trail intended for pedestrians and bicyclists. In the areas of more intense uses (e.g., lawn/picnic areas), the trail is incorporated into the sidewalk network. In the southern corner of the Park, Oak Hill Trail accesses an undeveloped portion of the Park and is available for pedestrian use only. To the south, Almaden Lake Trail connects with Los Alamitos Creek Trail, which continues 3.9 miles south along Alamitos Creek to Santa Teresa County Park. At the northern Park border, Almaden Lake Trail passes under Coleman Avenue and connects to the Guadalupe River Trail. A more detailed discussion of these regional trails follows.

Recreational Trails

Los Alamitos Creek Trail

Los Alamitos Creek Trail is a paved, 4.7-mile long multi-use path that begins at Almaden Lake and heads south, following the banks of the creek. Initially the trail skirts some housing developments before crossing the creek and running parallel to Camden Avenue. The trail eventually leaves the road and follows Calero and Santa Teresa Creeks, ending at Fortini

Road and Santa Teresa County Park. The trail is open to hikers, walkers, joggers, dogs, and horses. The trail features a trailside parcourse station, a beach, some picnic areas, and a park. Cyclists can use Los Alamitos Creek Trail as a route to Santa Teresa County Park and Almaden Quicksilver County Park (Bay Area Hiker, 2001).

Guadalupe River Trail

The northern segment of the Guadalupe River Trail runs from the Bay in Alviso beneath most roadways, including under State Route 237, US Highway 101, and Interstate 880, as it makes its way past San José International Airport, past the San José Pavilion and through downtown San José to end at Virginia Street, just south of Interstate 280. The northern section passes through the 250-acre Guadalupe River Park and Garden. The southern segment of the Guadalupe River Trail extends from Chynoweth Avenue and follows the river south to Almaden Lake Park (TrailLink, 2016).

3.N.2 Regulatory Setting

There are no federal, state, or local regulations governing recreational resources that are applicable to the Project.

3.N.3 Impacts and Mitigation Measures

Significance Criteria

Implementation of the Project would have a significant impact on recreation resources if it were to:

- Result in the loss of recreational opportunities that would 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;
- Include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment.

Approach to Analysis

The Project's potential to result in impacts related to recreation is analyzed qualitatively, based upon familiarity with the Project area, site visits, and a review of aerial photographs and recreation maps prepared by planning agencies within the affected jurisdiction. The evaluation of Project impact on recreational facilities in the Project area to avoid or mitigate an environmental effect or to protect the environment is based on the proximity of recreational opportunities and facilities to the siting, construction, and operation of the Project facilities.

The Project includes the reconfiguration of Almaden Lake, which is used for pedal boating, wildlife viewing and fishing. In addition, the Project includes construction of a new maintenance road/public trail, new open Park area (replacing existing beach area), and relocation of the existing boat ramp and boat house. Finally, construction of the Project would include temporary closure of portions of Project area trails, picnic areas, lawn areas, and amphitheater, all of which would be returned to conditions similar to existing at the end of Project construction. Although not required to address indirect impacts on the visitor experience during construction, it is noted that mitigation measures under Sections 3.C, Air Quality, and 3.L, Noise, would reduce air quality and noise impacts during construction, and would therefore diminish the effect of construction activities on recreational resources.

The analysis in this section is focused on the physical impacts of the Project on recreational resources beyond those that are directly included as part of the Project Description.

Impact Summary

Table 3.N-2 provides a summary of recreation impacts by implementation phase (construction and operations).

TABLE 3.N-2
SUMMARY OF RECREATION IMPACTS

Impact Statement	Construction	Operation
Impact 3.N-1: The Project would not result in the loss of recreational opportunities that would 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.	LS	LS
Impact 3.N-2: The Project would not include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment	LS	LS

LS = Less than significant

Impacts and Mitigation Measures

Impact 3.N-1: The Project would not result in the loss of recreational opportunities that could 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. (Less than Significant)

Construction Impacts

Construction of the Project would occur within Almaden Lake Park, in the vicinity of Los Alamitos Creek Trail to the south of the Park, along Almaden Expressway north of the Park, and would include a construction access point immediately downstream of the Coleman Road Bridge at the Guadalupe River East Bank Trail by the Santa Clara Valley Transportation Authority Almaden Light Rail Station (Figure 2-2, in Chapter 2, Project Description). Project construction would result in temporary closures to several existing recreational facilities during the approximately 30-month construction period. During this period, temporary closures within the Park would include: the boat rental and boat launch; up to six reservable picnic areas; three open-use picnic areas; segments of Almaden Lake Trail, Los Alamitos Creek Trail, and Guadalupe River East Bank Trail; the beach and adjacent open area; and the amphitheater.

Temporary construction fencing would be installed along the perimeter of the work area and lake to restrict access to active construction and staging areas and reduce the visual intrusion of construction activities on the visitor experience. Construction fencing would encircle the lake and include additional areas along the Westside and along the Eastside from Alamitos Creek on the south to the construction access point off Winfield Boulevard.

On the Westside, construction would result in a temporary restriction of access to the boat rental and launch, Lakeview, Peppertree, and Tamien picnic areas, the Willow and Ohlone open-use picnic areas, the beach and adjacent open lawn area, and portions of Almaden Lake Trail entirely or in phases. The area of closure would be less on the Eastside, but still affect several amenities, including the Arroyo, Southpoint, and Quicksilver picnic areas, the amphitheater, portions of Almaden Lake Trail, and potentially a portion of the Greystone open-use picnic area (Figure 3.N-1). While public access to these areas would be restricted during construction, visitors would continue to have access to the north shoreline, bocce courts, playgrounds, remaining picnic areas, horseshoe pits, volleyball, all restrooms, and some parking.

It is anticipated that no substantial change would be made to Almaden Lake Trail during construction, although minor grade modifications would be made to 150 feet of the trail at the north end of the lake to match the finished grade of the levee. Portions of Oak Hill Trail near the intersection with Almaden Lake Trail would be temporarily closed during grading work in the area. During the temporary closure of trails, trail users would be redirected to maintain connection with the Los Alamitos Creek and Guadalupe River trails. Signage and fencing would inform and redirect trail users around the restricted areas. Construction of the Almaden Valley Pipeline alignment and use of the Guadalupe River East Bank Trail as a construction access point would result in temporary closures of segments of these trails. To the extent possible, trail closure would be phased according to the construction schedule.

Construction activities could temporarily close six of the Park's seven reservable picnic sites (Lakeview, Peppertree, Tamien, Arroyo, Southpoint, and Quicksilver) with a combined capacity of up to 920, plus amenities such as barbeques, entirely or in phases. The Greystone, Willow, and Ohlone open-use picnic areas would also be wholly or partially closed during this time. With these closures, one reservable picnic area (Cinnabar I & II) serving a capacity of 180, plus amenities, and the North Shore open-use picnic area would remain open (Figure 3.N-1).

The temporary disruption caused by construction would be expected to increase the use of nearby parks or other recreational facilities within the Project area vicinity (e.g., Santa Teresa County Park, Oak Grove Park). However, to the extent feasible and possible, closure of the amenities and recreation opportunities at Almaden Lake Park would be phased during the 30-month construction period; therefore, it is not expected that all amenities or opportunities would be unavailable for the entire construction period. Given the availability of nearby Park facilities (i.e., within five miles, and as described above in the Setting section), it would be expected that no one park alternative would replace all uses temporarily displaced at Almaden Lake Park, such that substantial physical deterioration of alternate facilities would occur or be accelerated. Therefore, impacts on other parks or recreational facilities during Project construction would be **less than significant**.

Operations Impacts

Operational activities associated with the Project would include the continuation of existing and ongoing maintenance activities and existing recreational use at the Park, as well as new activities such as routine vegetation management and structural maintenance activities for the levee, road and trail, creek channel, and lake. Details on maintenance activities are provided in Chapter 2, Project Description. The majority of the maintenance activities would be similar to those currently occurring at the Project site. The Project would not change existing recreational uses of the Park. The City would continue to be responsible for managing recreational uses at Almaden Lake, such as swimming, fishing, pedal boating, picnicking, non-motorized biking, and hiking activities.

New maintenance activities would result in temporary closures of trails or the maintenance road on an as-needed basis. These closures would not be expected to occur over more than a few weeks at any given location. Because there are multiple trails and paths in the Park providing alternate routes and given the temporary nature of maintenance, this impact would be **less than significant**.

The Project would result in several permanent operational improvements to the Park. The levee would be utilized as both a road for District and Park maintenance vehicles, and as a pedestrian pathway. This pathway would connect with the existing Guadalupe River Trail beyond the north end of the lake and with the existing Los Alamitos Creek Trail at the south end of the lake. The existing boat launch ramp and boat house would be relocated to the southeastern area of the reconfigured lake. Pedal boating would continue at the Park operating out of the boat house. The open park area along the western shore of the lake would be expanded. The open park area expansion would convert the sandy beach to an open grassy area, changing the recreational use of this area. These long-term improvements to the Park would not result in an increase in the use of existing neighborhood and regional parks or recreational facilities, as the temporarily displaced uses would return to this Park. Therefore, this impact would be **less than significant**.

Mitigation Measures

None required.

Impact 3.N-2: The Project would not include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment. (Less than Significant)

The temporary disruption caused by construction would be expected to increase the use of nearby parks or other recreational facilities within the Project area vicinity (e.g., Santa Teresa County Park, Oak Grove Park). Given the availability of nearby Park facilities (i.e., within five miles, and as described above in the Setting section), there would not be a need to expand or construct recreational facilities during construction. Therefore, impacts from expansion or construction of recreational facilities during Project construction would be **less than significant**.

The Project would result in several permanent operational improvements to the Park including a new levee trail connecting the Guadalupe River Trail with the Los Alamitos Creek Trail and expanded open park area along the western shore of the lake. These long-term improvements to the Park are not anticipated to result in increased use of the Park. Therefore, this impact would be **less than significant**.

The impacts of construction of new recreation facilities, the construction disturbance and replacement of existing facilities, and operation of new recreation facilities, is the subject of this EIR. For instance, the construction impacts associated with the new recreation facilities and disturbance and replacement of existing facilities are analyzed separately in applicable sections of this document including: Section 3.C, Air Quality; Section 3.I, Greenhouse Gas Emissions; Section 3.L, Noise; and Section 3.O, Transportation.

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3.O Transportation

This section describes the environmental and regulatory setting of the Project site and surrounding area with respect to transportation, and includes an analysis of impacts to those resources from the Project. For the purposes of this assessment, the transportation analysis includes effects of construction-generated traffic on traffic flow on area roadways (autos, transit, and emergency vehicles), and traffic hazards. If needed, District best management practices (BMPs) and mitigation measures to avoid or reduce significant impacts are also identified.

3.O.1 Environmental Setting

This environmental setting is based on existing available information from state, regional, and local transportation management agencies, as well as site specific data collected for this Project (Fehr & Peers, 2016). The transportation study area is generally defined based on the expected haul routes for the construction truck traffic and commute routes by construction workers. In general, State Route (SR) 85 and SR 87 would be used by trucks to haul material, and by construction workers to commute on local roads to access the project site.

Regional Setting

State Route 85 (SR 85) is a freeway that passes through Silicon Valley, wrapping around San José, connecting Mountain View in the west with South San José in the east. Located north of the Project site, SR 85 has two mixed-flow lanes and one High-Occupancy Vehicle (HOV) lane in each direction. The HOV lanes operate on weekdays from 5:00-9:00 AM and 3:00-7:00 PM for carpool vehicles (i.e., vehicles with two or more persons) and eligible clean air vehicles; outside of those hours, the HOV lanes can be used by all vehicles. Trucks over 9,000 pounds gross vehicle weight are prohibited on the 18.4-mile stretch of SR 85 from US 101 in San José to Interstate 280 in Cupertino. SR 85 connects to the local street network that provides direct access to the Project site via the SR 85 /Almaden Expressway interchange.

State Route 87 (SR 87) is a divided freeway that connects SR 85 to U.S. Highway 101. SR 87 has two mixed-flow lanes and one HOV lane in each direction. The HOV lanes operate on weekdays from 5:00-9:00 AM and 3:00-7:00 PM for carpool vehicles (i.e., vehicles with two or more persons) and eligible clean air vehicles; outside of those hours, the HOV lanes can be used by all vehicles. SR 87 terminates at its southern end at the SR 85 / Santa Teresa Boulevard / SR 87 interchange; Santa Teresa Boulevard provides access from SR 87 to the Project site.

Local Setting

Almaden Expressway is a north-south divided expressway (part of County Route G8, and designated as an “Other Principal Arterial) with four to eight lanes that begins at Harry Road in South San José and transitions into Almaden Road just north of SR 87. Access to Almaden Expressway is limited to major intersections controlled by signals (i.e., no driveways), though there is an exception to this near SR 85 and Blossom Hill Road where several commercial and shopping centers have direct driveway access to Almaden Expressway. The Almaden Lake Park has a right-in/right-out driveway on Almaden Expressway approximately 650 feet south of Coleman Road.

Coleman Road is an east-west Minor Arterial that extends from Camden Avenue to Santa Teresa Boulevard. Coleman Road between Camden Avenue and Redmond Avenue has a single lane in each direction, and widens to two lanes in each direction between Redmond Avenue and Santa Teresa Boulevard.

Winfield Boulevard is a north-south Minor Arterial that extends from Almaden Expressway to Chynoweth Avenue. Adjacent to Almaden Lake Park, Winfield Boulevard has two lanes in each direction, and north of Coleman Road, the roadway transitions into one lane in each direction, with a center left turn lane.

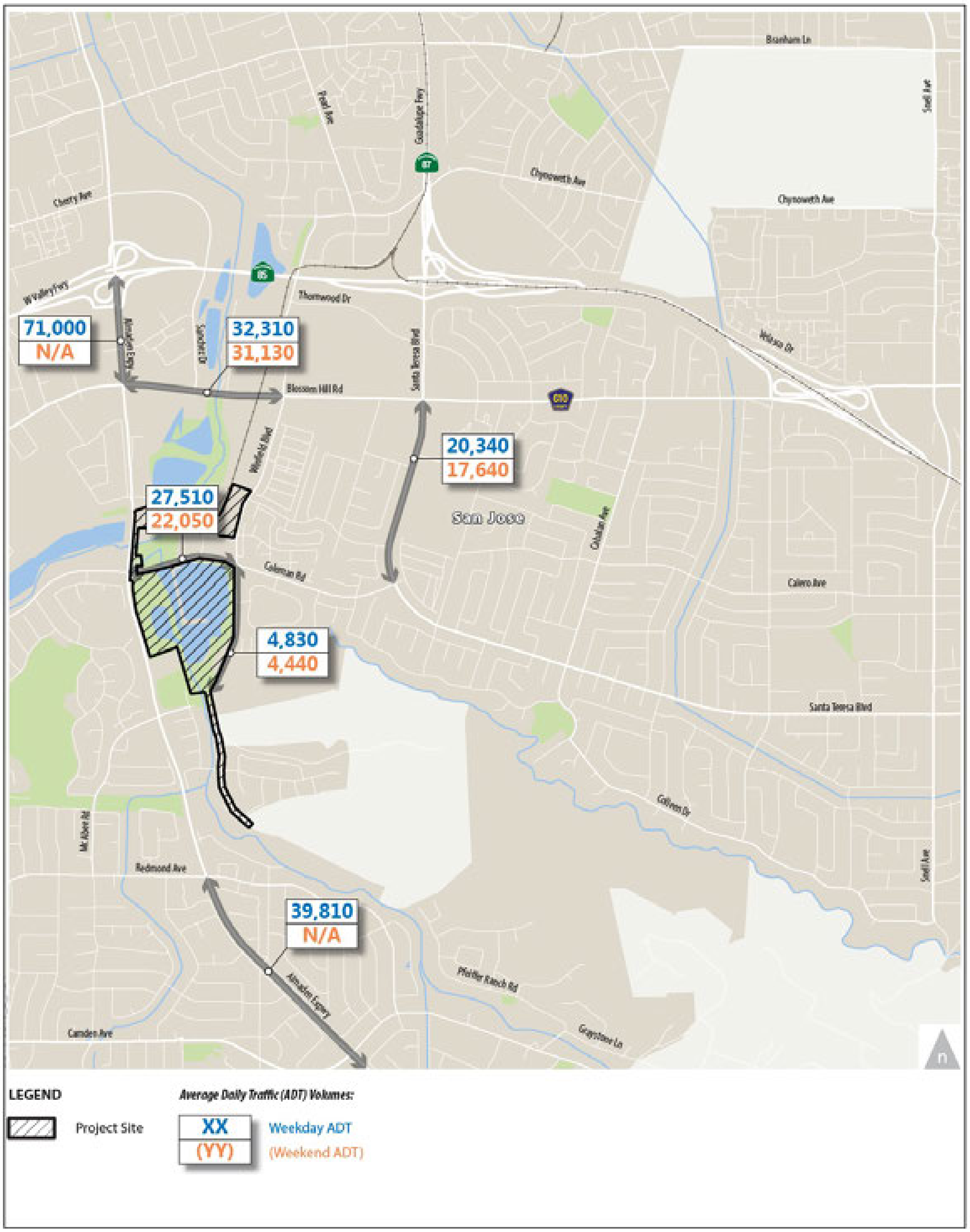
Santa Teresa Boulevard is an east-west roadway that extends from Scheller Avenue to SR 87. Santa Teresa Boulevard is classified as a Minor Arterial between Scheller Avenue and Bailey Avenue and between Blossom Hill Road and SR 87; it is classified as a Principal Arterial between Bailey Avenue and Blossom Hill Road. There are three lanes in each direction between SR 87 and Bayliss Drive and one lane in each direction between Bayliss Drive and Scheller Avenue.

Blossom Hill Road is an east-west Principal Arterial that extends from North Santa Cruz Avenue in the west to the Montgomery Road overpass in the east. Blossom Hill Road is part of County Road G10. Near the Project site, the road provides three lanes in each direction, with a center raised median.

Existing Traffic Volumes

Table 3.O-1 and **Figure 3.O-1** display the existing daily roadway segment volumes (weekday and weekend). Roadway segment volumes were collected June 2 through June 4, 2016 (Thursday through Saturday), except for Almaden Expressway, which is a County-maintained expressway. The County encourages use of traffic volumes in the Santa Clara County Road Book to maintain consistent information across traffic studies; the County collects weekday volumes only. The most recent count information on Almaden Expressway is from 2017 for both study segments (between SR 85 and Blossom Hill Road, and between Redmond Avenue and Via Valiente.

Daily Level of Service (LOS) grades shown in Table 3.O-1 were assigned to the study area roadways using planning-level volume/capacity guidance developed by the Florida Department of Transportation (FDOT) that considers the speed, number of travel lanes, and the type of traffic control (i.e., interrupted or uninterrupted flow), (FDOT, 2012). The FDOT guidance is considered to be an industry standard that is used nationwide for general planning applications.



SOURCE: Fehr and Peers

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Figure 3.O-1
Roadway Network and
Daily Traffic Volumes

TABLE 3.O-1
EXISTING DAILY TRAFFIC VOLUMES ON AREA ROADWAYS

Road Segment	Classification	Number of Travel Lanes	Weekday Volume	LOS[1]	Weekend Volume	LOS[1]
Almaden Expressway: SR 85 to Blossom Hill Road	Expressway	6	73,920	F	N/A	N/A
Almaden Expressway: Redmond Avenue to Via Valiente	Expressway	4	34,840	C	N/A	N/A
Coleman Road: Almaden Expressway to Winfield Boulevard	Minor Arterial	4	27,510	C	22,050	C
Winfield Boulevard: South of Coleman Road	Minor Arterial	4	4,830	C	4,440	C
Santa Teresa Boulevard: Blossom Hill Road to Coleman Road	Principal Arterial	6	20,340	C	17,640	C
Blossom Hill Road: Almaden Expressway to Winfield Boulevard	Principal Arterial	6	32,310	C	31,130	C

NOTES:

N/A = not available

[1] The FDOT guidance only provides volume thresholds corresponding to LOS C or worse conditions on signalized interrupted flow facilities. Therefore, locations identified as operating at LOS C in this table may actually operate better than LOS C (i.e., LOS A or LOS B.

SOURCES: Santa Clara County Roads and Airports (Almaden Expressway volumes), 2017; FDOT; and Fehr & Peers (June 2 through June 4, 2016)

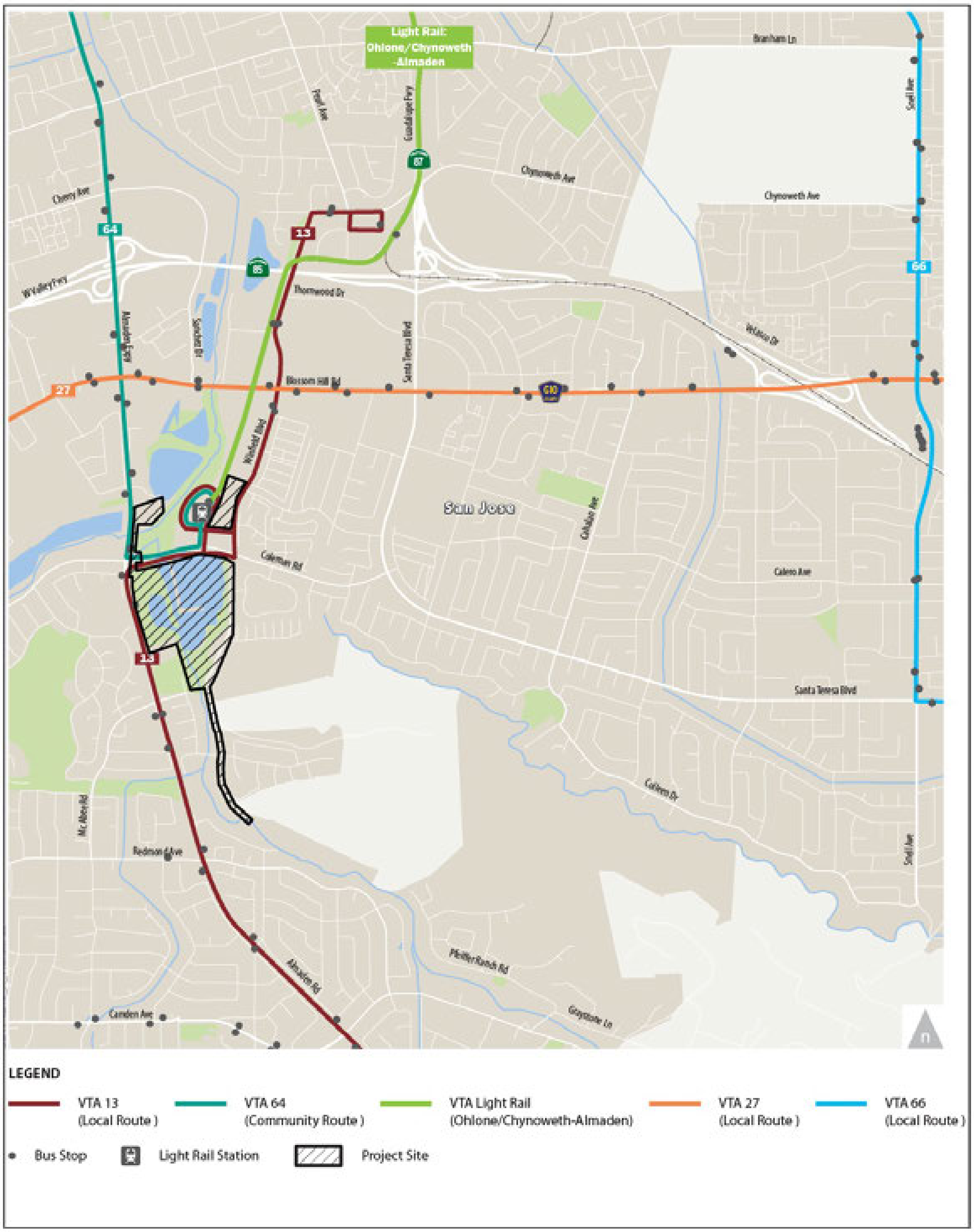
Transit Service

The Santa Clara Valley Transportation Authority (VTA) provides light rail, bus and paratransit service to Santa Clara County, including the City of San José. Light rail trains operate at frequencies of 15 to 60 minutes, depending on the time of day. VTA bus routes generally operate between 5:00 AM and 1:00 AM on weekdays and 6:00 AM and 12:30 AM on weekends. Transit services that operate on, and cross, roadways within the Project study area are displayed on **Figure 3.O-2**.

Bicycle Facilities

Bikeway planning and design in California typically relies on guidelines and design standards established by Caltrans, with bikeways consisting of paths (Class I), lanes (Class II), and routes (Class III).

- ***Class I Bikeway (Bicycle Path)*** provides a completely separate right-of-way and is designated for the exclusive use of bicycles and pedestrians with vehicle and pedestrian cross-flow minimized. In general, bike paths serve corridors not served by streets and highways or where sufficient right-of-way exists to allow such facilities to be constructed away from the influence of parallel streets and vehicle conflict.



SOURCE: Fehr and Peers

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Figure 3.O-2
Existing Transit Facilities

- ***Class II Bikeway (Bicycle Lane)*** provides a restricted right-of-way generally adjacent to the outer vehicle travel lane and is designated for the use of bicycles. These lanes have special lane markings, pavement legends, and signage. Bicycle lanes are generally four to six feet wide. Adjacent vehicle parking and vehicle/pedestrian cross-flow are permitted.
- ***Class III Bikeway (Bicycle Route)*** are designated by signs or pavement markings (sharrows) for shared use with pedestrians or motor vehicles but have no separated bike right-of-way or lane striping. Sharrows are a type of pavement marking (bike and arrow stencil) placed to guide bicyclists to the best place to ride on the road, avoid car doors, and remind drivers to share the road with cyclists. Bike routes serve either to: a) provide continuity to other bicycle facilities, or b) designate preferred routes through high demand corridors.

Existing facilities in the study area are displayed on **Figure 3.O-3**. There are Class II bike lanes adjacent to the Park on Almaden Expressway. North of the Project site, bike lanes are provided along both sides of Coleman Road. To the northeast and southwest of the project site, bike lanes are provided on both sides of McAbee Road and Winfield Boulevard. There are several Class I trails around the Project site: Los Alamitos Creek Trail, Almaden Lake Trail, and Guadalupe Creek Trail.

Pedestrian Facilities

Pedestrian facilities consist of sidewalks, crosswalks, and pedestrian signals at signalized intersections. The pedestrian environment was evaluated along the connecting roadways that directly serve the Project site and adjacent roadways that connect to transit stations and/or nearby destinations in the greater study area. Pedestrian connectivity in the vicinity of the Project site is provided by an almost complete network of sidewalks and crosswalks that serve the adjacent Almaden and Alamitos neighborhoods. In addition, there are pedestrian trails throughout Almaden Lake Park.

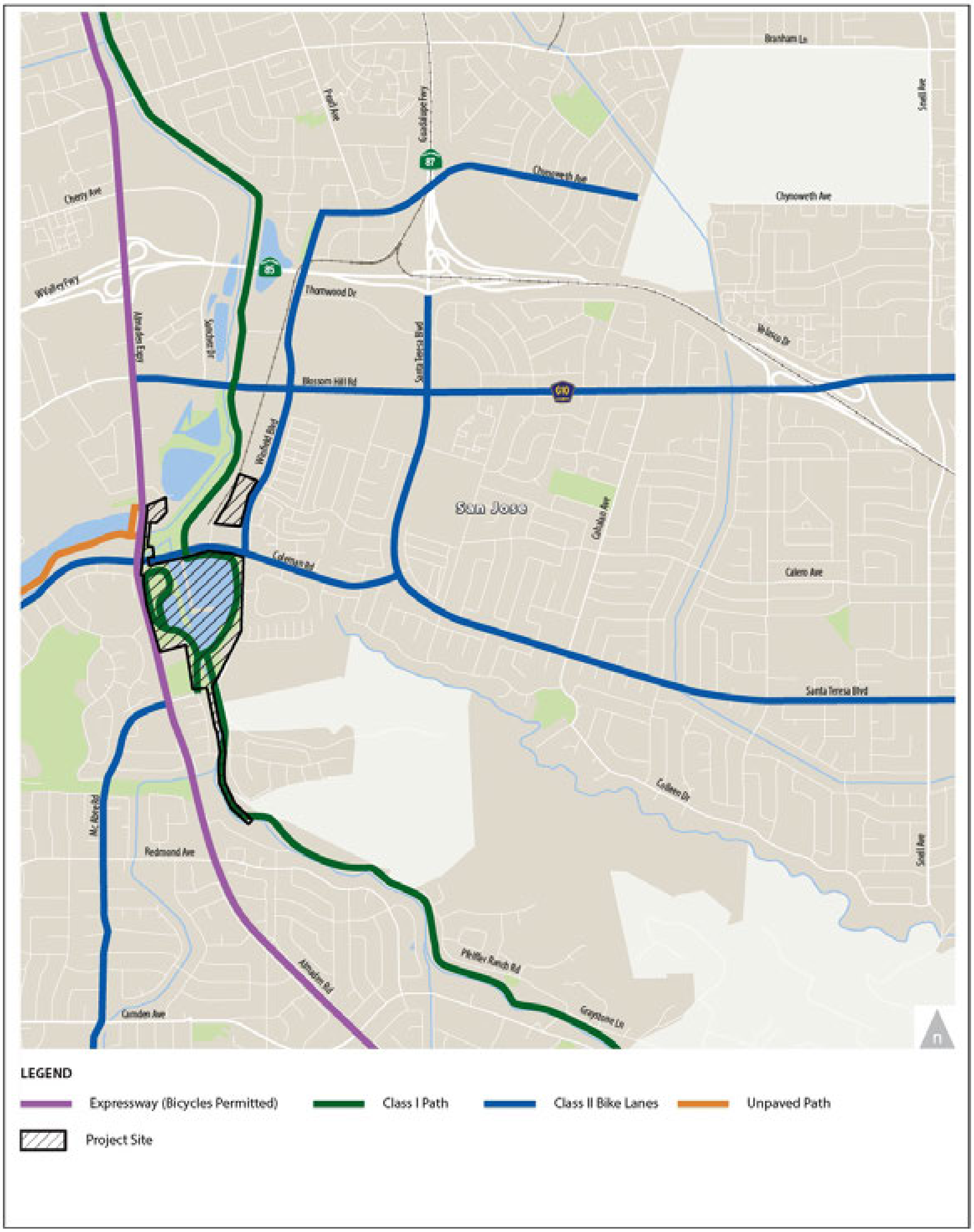
3.O.2 Regulatory Setting

Federal Regulations

There are no federal regulatory transportation plans or programs that are applicable to impacts of the Project’s temporary construction-period activities. As described below, there would be no permanent (ongoing) transportation effects caused by the Project (i.e., after construction is complete).

State Regulations

The California Department of Transportation (Caltrans) has jurisdiction over state highway facilities including SR 85 and SR 87, which would be used for regional access to the Project site. Caltrans does not have any regulatory transportation plans or programs that are applicable to impacts of the Project’s temporary construction-period activities. As described below, there would be no permanent (ongoing) transportation effects caused by the Project (i.e., after construction is complete).



SOURCE: Fehr and Peers

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Figure 3.O-3
Existing Bicycle Facilities

Local Regulations

The following policy from Chapter 6, Land Use and Transportation, of *Envision San José 2040* (the City's General Plan), pertains to the goal of providing for the safe and efficient movement of goods to support commerce and industry.

> **TR-6.1.** Minimize potential conflicts between trucks and pedestrian, bicycle, transit, and vehicle access and circulation on streets with truck travel.

Apart from TR-6.1, there are no other local regulations that pertain to the assessment of Project construction effects on Transportation. The City of San José has guidance for recommended temporary traffic control measures, but they are not mandatory and only apply to construction activities on or adjacent to a roadway (City of San José, 2005).

3.O.3 Impacts and Mitigation Measures

Significance Criteria

Implementation of the Project would have a significant impact on transportation if it were to:

- Conflict with a project plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities;
- Conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b);
- Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment); or
- Result in inadequate emergency access.

Approach to Analysis

This analysis differs from typical transportation impact analysis performed for land development projects because the changes in the transportation conditions due to Project construction are temporary and construction activities would result in a relatively small increase in traffic volumes in the study area relative to existing traffic volumes. This study evaluates the traffic volumes during the peak sustained traffic conditions, during which construction of six elements of the Project could overlap, which would last approximately 18 business days.[1]

Santa Clara VTA and City of San José Analysis Type Determination

The Santa Clara County VTA requires all local jurisdictions to conform to the Congestion Management Program Transportation Impact Analysis guidelines (October 2014) to evaluate the transportation impacts of all land use decisions within the Member Agency's jurisdiction that are projected to generate 100 or more permanent AM or PM weekday peak-hour trips. The Project would not generate any new traffic after construction is completed, and although

1 The 18-day duration of peak construction traffic was determined based on start/finish dates by construction phase from the CalEEMod inputs used for the Air Quality analysis (see Appendix B.2).

the construction of the Project is expected to generate more than 100 AM or PM weekday peak-hour trips (as documented herein), these trips would only be generated on a temporary basis and would not represent a permanent condition. Therefore, a detailed transportation impact analysis per VTA guidelines (such as intersection analysis) is not required.

The City of San José requires detailed transportation impact analysis for most development projects. The *City's Transportation Analysis Handboo*k (April 2018) provides guidelines and policies that guide transportation impact analysis. This latest update to the Handbook aligns with the City's new Transportation Analysis Policy (Council Policy 5-1), which replaces the level of service (LOS) threshold with a vehicle miles traveled (VMT) threshold. However, the Handbook also indicates that the transportation analysis conducted for a project must demonstrate compliance with the Congestion Management Program. Therefore, the trip generation guideline to evaluate the transportation impacts for land development that are projected to generate 100 or more AM or PM weekday peak-hour trips was considered as applicable for this study. As described above, since the Project is not expected to generate any new traffic after construction is complete, and the construction traffic is a temporary condition, a detailed transportation impact analysis per City guidelines (such as intersection analysis) is not required.

Roadway Segment Analysis Methodology

Daily roadway segment analysis is provided in this study to provide context and to demonstrate that construction of the Project would contribute a small amount of traffic to the surrounding roadway network. To determine the extent to which construction of the Project would add traffic to the surrounding roadway network, the percent of daily construction traffic added to study roadway segments is calculated (for the construction period with the highest traffic volumes). Because truck traffic takes up more physical room on roadways than a passenger car and has slower acceleration/deceleration, truck traffic was considered to have two-times the effect that a single passenger car has. Therefore, truck traffic generated by the Project was multiplied by a "passenger car equivalent" (PCE) factor of 2.

Avoidance and Minimization Measures Incorporated into the Project

Avoidance and minimization measures are those parameters that have been built into the design of the Project and are committed to as part of Project implementation. These measures are generally included in the Project Description (Section 2.E.1) of this report, but where appropriate, the specific measures related to the impact evaluations are also summarized below.

The following avoidance and minimization measure is contained in the District's Best Management Practices (BMP) Handbook (SCVWD, 2014), and has been incorporated into the Project. This measure would generally help to reduce the intensity of impacts associated with the Project, in accordance with District policy.

TR-1. Use Suitable Public Safety Measures.

Impact Summary

Table 3.O-2 provides a summary of transportation impacts by implementation phase (construction and operation).

TABLE 3.O-2
SUMMARY OF TRANSPORTATION IMPACTS

Impact Statement	Construction	Operation
Impact 3.O-1: The Project would increase traffic volumes on area roadways, but would not conflict with a program plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities.	LS	NI
Impact 3.O-2: The Project would not conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b)	LS	NI
Impact 3.O-3: The Project would not substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment).	LS	NI
Impact 3.O-4: The Project would not result in inadequate emergency access.	LS	NI

LS = Less than Significant
NI = No Impact

Impacts and Mitigation Measures

Impact 3.O-1: The Project would increase traffic volumes on area roadways, but would not conflict with a program plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities. (Less than Significant)

Construction Impacts – Roadways

Project construction would require construction activities that would generate a temporary increase in traffic volumes on area roadways. The amount of that increased traffic on area roadways is determined by estimating project trip generation, and then assigning the project trips to specific road segments based on the anticipated direction of travel to and from the project site (north-south-east-west). This process is described in more detail in the following sections.

Trip Generation

Construction traffic would be generated by construction workers and construction activities over a two-and-a-half-year period. Based on the construction schedule, the busiest construction period would last 18 working days, during which construction of the following six elements of the Project would overlap and generate about 679 daily trips (see **Table 3.O-3**):

- Working surface/vegetation and debris removal
- Expanded and new islands
- Transfer pipeline from Almaden Valley Pipeline

- Lake area with clay cap
- Alamitos restored channel area with clay cap
- Transfer pipeline to Los Alamitos percolation pond

TABLE 3.O-3
WEEKDAY CONSTRUCTION CONDITIONS TRIP GENERATION SUMMARY
(DURING 18-DAY OVERLAP OF PROJECT ACTIVITIES)

		AM Peak Hour[1]			PM Peak Hour[1]		
	Daily	**Total**	**In**	**Out**	**Total**	**In**	**Out**
Construction Workers	120	48	48	0	48	0	48
Truck Haul Trips	559	51	34	17	51	17	34
Truck Haul Trips *PCE*[2]	*1,118*	*102*	*68*	*34*	*102*	*34*	*68*
Total Without PCE	**679**	**99**	**82**	**17**	**99**	**17**	**82**
Total With PCE	***1,238***	***150***	***116***	***34***	***150***	***34***	***116***

1 "AM in" and "PM in" refers to vehicles entering the construction site during the AM/PM peak hour. "AM Out" and "PM Out" refers to vehicles exiting the construction site during the AM/PM peak hour.
2 PCE = Passenger Car Equivalent; a PCE rate of 2 vehicles per truck was used

SOURCES: Fehr & Peers, 2016; ESA (Appendix B.2 of this EIR), 2019.

As the table shows, the overlap would generate 150 PCE trips (99 vehicle trips excluding the PCE factor) for both weekday morning and evening peak hours, which is above the minimum 100 weekday peak hour trips required to perform a detailed transportation impact analysis per the VTA Congestion Management Program Transportation Impact Analysis guidelines.

As discussed in Section 2.E.3, Summary of Construction Equipment/Crews/Duration, construction activities would typically occur between the hours of 7 am and 7 pm, Monday through Friday. With written approval from the City of San José, construction activities could also occur on Saturdays from 8 am to 5 pm. However, for the purpose of considering transportation impacts associated conflicts with a program, plan, ordinance or policy addressing the circulation system, this analysis considers the potential for all PCE trips to occur during the weekday morning and evening peak hours.

For the morning peak hour, most truck haul trips would consist of inbound trucks, as it would presumably take some time to load/unload them for their outbound trips. For the evening peak hour, it is assumed most truck haul trips would consist of outbound trucks, as the final exiting loads for the day would occur during this time. Outside of the morning and evening peak hours, truck haul trips are assumed to be equally distributed between inbound and outbound trips.

Below are additional details for the 18-day overlap period, which were extracted from the Air Quality analysis assumptions provided in Appendix B.2 of this EIR:

- 8-person construction work crew for each of the six Project elements. Total of 120 daily vehicle trips (8 commute trips to the site during the morning peak hour, and 8 commute trips away from the site during the afternoon peak hour, with 4 additional lunch or errand vehicle trips occurring during the day).

- 16-Cubic Yard (CY) capacity haul trucks, and the truck trips would be spread evenly throughout the phase duration.
- Working Surface/Vegetation and Debris Removal:
  - No truck trips of cut and fill material (2 vendor truck trips only).
- Construct Expanded and New Islands:
  - 85 daily haul truck trips of fill material (no cut).
- Transfer Pipeline from Almaden Valley Pipeline to Los Alamitos Percolation Pond:
  - 2 daily haul truck trips of cut and fill material.
- Construct lake Area Clay Cap:
  - 228 daily haul truck trips of cut and fill material.
- Alamitos Restored Channel Area Clay Cap:
  - 219 daily haul truck trips of cut and fill material.
- Transfer Pipeline to Los Alamitos Percolation Pond:
  - 23 daily haul trips of cut and fill material.

Trip Distribution and Assignment

As indicated above, the majority of the Project construction trips would consist of haul truck trips that would transport cut and fill material to and from the Project site. The construction staging area would be the lakebed, the southwestern lawn area of Almaden Lake Park, and north of the Project site at the District's Winfield Warehouse yard, and would be accessed via Almaden Expressway, Coleman Road, and Winfield Boulevard. The haul trips would primarily use freeway facilities and, because SR 85 does not permit haul trucks, would mostly use SR 87. The other (smaller) portion of trips are associated with the construction workers who would gain access to parking spaces provided at the Project site via Winfield Boulevard.

The daily volumes generated by the Project plus the existing daily volumes are shown below in **Table 3.O-4**. Due to uncertainty as to how many trucks would access the Project site from each of the three access points (i.e., Almaden Expressway, Coleman Road, and Winfield Boulevard), and which roadways construction workers would use to access the parking area off of Winfield Boulevard, it was conservatively assumed that all trucks and construction worker trips generated by Project construction could travel on any of the six study roadway segments. Therefore, 679 daily Project trips (559 truck trips, 120 worker trips) were added to all study roadway segments. Taking into account the PCE factor for the truck trips, this would be the equivalent of approximately 1,238 daily Project trips.

TABLE 3.O-4
EXISTING AND EXISTING PLUS PROJECT DAILY ROADWAY SEGMENT VOLUMES

Roadway Segment	Classification	Number of Travel Lanes	Existing	Existing plus Project	% increase
Almaden Expressway: SR 85 to Blossom Hill Road	Expressway	6	73,920	75,158	1.7%
Almaden Expressway: Redmond Avenue to Via Valiente	Expressway	4	34,840	36,078	3.6%
Coleman Road: Almaden Expressway to Winfield Boulevard	Minor Arterial	4	27,510	28,748	4.5%
Winfield Boulevard: South of Coleman Road	Minor Arterial	4	4,830	6,068	25.6%
Santa Teresa Boulevard: Blossom Hill Road to Coleman Road	Principal Arterial	6	20,340	21,578	6.1%
Blossom Hill Road: Almaden Expressway to Winfield Boulevard	Principal Arterial	6	32,310	33,548	3.8%

SOURCES: Santa Clara County Roads and Airports, 2016; ESA, 2019.

The estimates in Table 3.O-4 reflect the most conservative scenario of maximum traffic activity on all study roadways. In reality, the total number of construction vehicles on any one roadway would be less than that assumed, and construction-related traffic activity would generally be spread out using a number of possible travel paths to access the Project site. It also represents the busiest three-week period identified in the preliminary construction schedule. During other periods of construction, fewer trips would be generated.

Based on these conservative assumptions, the Project would result in temporary maximum increases in traffic volumes on the study roadways that range from 1.7 percent (Almaden Expressway between SR 85 and Blossom Hill Road) to 25.6 percent (Winfield Boulevard south of Coleman Road). Almaden Expressway already operated at LOS F, but the maximum potential increased from construction activities is within the range of typical daily variation in traffic levels (usually on the order of ± 5 percent) that might be expected on the major roadways serving the Project site, and roadway operating conditions would remain substantially similar to current conditions. Increased traffic on other roadways would also fall within this typical daily variation. The traffic volume on Winfield Boulevard in the Project area is about 4,830 vehicles per day, and the addition of up 1,238 vehicle trips per day would represent an increase of up to about 26 percent. That percent increase in traffic volume (greater than the above-cited ± 5 percent typical daily variation in traffic levels) would be noticeable to the average motorist. However, traffic operating conditions on Winfield Boulevard, a four-lane divided arterial, would not fall below LOS C conditions (existing conditions) until a volume of about 32,400 daily vehicles is reached (FDOT, 2012). Therefore, the available capacity on Winfield Boulevard is adequate to accommodate the increase in traffic, which would mostly occur during non-peak traffic hours. Based on these factors, impacts to the performance of the traffic circulation conditions would be **less than significant** during Project construction.

Operations Impacts – Roadways

The City of San José would be responsible for maintenance of the new open park area, while anticipated maintenance activities for the District would include embankment and levee inspection and repair, sediment removal from the restored creek, levee settlement adjustment, restored vegetation maintenance and management along the restored creek and islands, lake water quality monitoring, and maintenance road grading and upkeep.

Vehicle trips generated by Project operations would be similar in number to those generated by existing and ongoing maintenance activities at Almaden Lake. New regular vehicle trips associated with Project operations would be limited to one truck trip every two weeks to maintain the new landscaping for the first three years after the Project is constructed. Other maintenance activities such as levee maintenance and inspection, bank repair, levee settlement adjustment, and sediment removal are irregular and rare, In relation to existing traffic volumes on study area roadways (see Table 3.O-4), this increase of one truck trip every two weeks would not affect roadway operations. There would be **no impact** related to Project operations.

Construction Impacts – Transit, Bicycle, and Pedestrian Facilities

Construction of the Project would neither directly nor indirectly eliminate existing or planned alternative transportation corridors or facilities (e.g., bike paths, lanes, etc.), including changes in policies or programs that support alternative transportation, nor construct facilities in locations which future alternative transportation facilities may be planned. The Project would not conflict with adopted policies, plans and programs supporting alternative transportation.

As described in Impact 3.O-1, construction activities associated with the Project would not generate traffic volume increases that would significantly affect traffic flow on area roadways. The performance of public transit, in street bicycle, and pedestrian facilities in the area likewise would not be adversely affected (see Section 3.N, Recreation, related to Project effects on Almaden Lake Trail, Alamitos Creek Trail, and Guadalupe River Trail), and the Project impact would be **less than significant**.

Operations Impacts – Transit, Bicycle, and Pedestrian Facilities

Similar to Project construction, operation of the Project would neither directly nor indirectly eliminate existing or planned alternative transportation corridors or facilities, including changes in policies or programs that support alternative transportation. The Project would not conflict with adopted policies, plans and programs supporting alternative transportation.

As described in Impact 3.O-1, operation of the Project would not generate more vehicle trips than are generated by current operation and maintenance activities. The performance of public transit, bicycle and pedestrian facilities in the area would be unaffected, and there would be **no impact** related to Project operations.

Impact 3.O-2: The Project would not conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b). (Less than Significant)

Section 15064.3 of the CEQA Guidelines applies mainly to analysis of VMT impacts associated with land use and transportation projects. Furthermore, projects that generate or attract fewer than 110 operational trips per day are generally exempt from further consideration with respect to VMT and impacts are assumed to be less than significant. (State of California Office of Planning and Research, 2018). Additionally, the City's VMT analysis guidance indicates that local-serving public facilities meet the City's screening criteria, meaning they are not subject to analysis, because they produce very low VMT (City of San José, 2018).

Per this statewide and local guidance, since the Project is neither a land use nor a transportation project, is a local-serving public facility, and would not generate many more vehicle trips than are generated by current operation and maintenance activities for Almaden Lake, it can be assumed to have a **less than significant** impact with respect to VMT.

Mitigation Measures

None required.

Impact 3.O-3: The Project would not 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)

Construction Impacts

Project construction would not alter the physical configuration of the existing roadway network serving the area, and would not introduce unsafe design features. The Project also would not introduce uses (types of vehicles) that are incompatible with existing uses already served by the road system that serves the Project site. Although higher traffic volumes could increase the potential for added vehicle collisions, Project-generated increases in traffic would be temporary and intermittent during Project construction (see Impact 3.O-1). Therefore, the Project impact to traffic safety hazards would be **less than significant**.

These impacts would be further reduced through adherence to the following avoidance and minimization measure, described previously: TR-1: Use Suitable Public Safety Measures.

Operations Impacts

Project operation would not alter the physical configuration of the existing roadway network serving the area, and would not introduce unsafe design features. The Project also would not introduce uses (types of vehicles) that are incompatible with existing uses already served by the road system that serves the Project site. Operation of the Project would not generate more vehicle trips than are generated by current operation and maintenance activities for Almaden Lake (see Impact 3.O-1). There would be **no impact** related to Project operations.

Mitigation Measures

None required.

Impact 3.O-4: The Project would not result in inadequate emergency access. (Less than Significant)

Construction Impacts

The Project would not change the configuration of the Project area's road network, and would not require the temporary closure of public roads during construction. As described in Impact 3.O-1, Project construction would not cause a significant increase in congestion on area roadways, though heavy construction-related vehicles could interfere with emergency response to the site or emergency evacuation procedures in the event of an emergency (e.g., vehicles traveling behind a slow-moving truck). The three adjacent roads that would experience use by construction vehicles: Winfield Boulevard, Almaden Expressway, and Coleman Road, all have at least two lanes in each direction. Construction vehicles would have room to pull over and let emergency vehicles pass, and emergency vehicles would have room to go around construction vehicles, and vehicles are required by law to yield to emergency vehicles that have siren and lights on. It is not considered likely that heavy construction-related traffic would result in inadequate emergency access. The Project would have a **less than significant** impact on emergency access.

Operations Impacts

Project operation would not alter the physical configuration of the existing roadway network serving the area, and would not introduce unsafe design features. The Project also would not introduce uses (types of vehicles) that are incompatible with existing uses already served by the road system that serves the Project site. Operation of the Project would not generate significantly more vehicle trips than are generated by current operation and maintenance activities for Almaden Lake (see Impact 3.O-1). There would be **no impact** related to Project operations.

Mitigation Measures

None required.

3.O.4 References

City of San José, *Transportation Analysis Policy (Council Policy 5-1)*, effective March 29, 2018.

City of San José, *Envision San José 2040 General Plan,* adopted October 2011 and amended in February 2018.

City of San José, *Recommended Temporary Traffic Control Plans*, September 2005.

Fehr and Peers, *Almaden Lake Improvement Project Transportation Evaluation*, November 2016.

Florida Department of Transportation, *Generalized Annual Average Daily Volumes for Florida's Urbanized Areas*, December 18, 2012.

Santa Clara County, Department of Roads and Airports, *Official County Road Book 2018*, July 2018.

Santa Clara Valley Water District, 2014; District's Best Management Practices (BMP) Handbook

State of California Office of Planning and Research, *Technical Advisory on Evaluating Transportation Impacts in CEQA*, December 2018.

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3.P Utilities and Service Systems

This section describes the environmental and regulatory setting of the Project site and surrounding area with respect to utilities and service systems, and includes an analysis of impacts to those resources from the Project. For the purpose of this assessment, utilities and service systems include water supply, wastewater collection, stormwater drainage, natural gas, petroleum, electricity, telecommunications, and solid waste disposal. Santa Clara Valley Water District (District) best management practices (BMPs) and mitigation measures to avoid or reduce significant impacts are also identified, as applicable.

3.P.1 Environmental Setting

Water, Wastewater, and Stormwater Drainage

The Project is located in Santa Clara County within the southern portion of the City of San José (Figure 2-1, in Chapter 2, Project Description), in the Guadalupe River Watershed. The Project is within the jurisdiction of the San Francisco Bay Regional Water Quality Control Board (RWQCB), as well as the jurisdiction of the District.

The District water supply system consists of a network of water management facilities, which include ten reservoirs and dams, nearly 400 acres of groundwater recharge ponds, 143 miles of pipeline, three water treatment plants, an advanced recycled water treatment plant, three pumping plants, and a treated water reservoir. The District covers 16 jurisdictions (15 cities and Santa Clara County), serves 12 water retailers, and supplies 2 million residents and commuters (SCVWD, 2013). The District also maintains 275 miles of creeks. The headwaters of all covered creeks and rivers originate in unincorporated Santa Clara County. Several of the creeks travel through multiple local jurisdictions before flowing to the San Francisco Bay.

The District receives water from federal, state, and local sources for treatment and delivery to water retailers or for groundwater recharge. The District imports water from the San Felipe Project via the San Luis Reservoir from the south, and from the State Water Project via the South Bay Aqueduct from the north (SCVWD, 2015a). The District maintains the groundwater basins and sells water to local municipalities and private retailers which in turn deliver drinking water directly to end users. For water supply, the area around Almaden Lake is served by the San José Water Company.

The City of San José is responsible for stormwater drainage throughout the city. Stormwater from urban infrastructure accumulates in the storm drain system and flows to local creeks.

The San José/Santa Clara Regional Wastewater Facility, located near Alviso, is currently undergoing an upgrade, and is presently the largest tertiary level treatment facility in the western United States, serving 1.4 million residents.

Municipal water needs for the Project area include irrigation, restrooms, concession stand, drinking fountains, and water play features located in the Park supplied by the San José Water Company. The City provides conveyance facilities to transport wastewater produced at the Park's restrooms to the San José/Santa Clara Regional Wastewater Facility. Pipes are along thoroughfares surrounding the Project site. Four storm drains convey stormwater from the surrounding neighborhoods to Almaden Lake.

Natural Gas and Electricity Conveyance

Pacific Gas and Electric Company (PG&E) is the principal electricity and natural gas provider in the vicinity of the Project area. Under deregulation, other companies may also provide electricity, although PG&E still delivers the service. PG&E owns the regional natural gas pipelines in the region. No major pipelines were identified within the footprint of the lake construction/upgrade area. Underground PG&E electric and gas conduits run parallel to or cross perpendicular to portions of the pipeline alignment corridors that would connect Almaden Lake to Almaden Valley Pipeline and Los Alamitos Percolation Pond.

Telecommunications

The Project region is served by multiple telecommunications companies, including AT&T, Xfinity/Comcast, and Verizon/MCI. Telecommunications infrastructure includes telecommunication lines (including aboveground telephone lines and belowground cable lines) and service centers.

Solid Waste

There are five operating landfills in the Project vicinity that could accept Project-related construction and demolition waste. These include Guadalupe Sanitary Landfill in San José; Kirby Canyon Recycling and Disposal Facility in San José; Newby Island Sanitary Landfill in San José; Zanker Material Processing Facility in San José; and Zanker Road Resource Recovery Operations Landfill in San José. The California Integrated Waste Management Board (CIWMB) maintains facility information and waste stream profiles for all counties and jurisdictions in the state.

Hazardous waste associated with lake bottom mercury sediment would be disposed of at either the Kettleman Hills Facility in Kettleman, California or at an approved facility in Utah. The Kettleman Hills Facility provides waste treatment, storage, and disposal operations for hazardous wastes and for municipal solid waste. The facility is located on 1,600 acres, with 499 acres currently available and permitted for waste disposal activities. Waste treatment, storage, and disposal units include a hazardous waste landfill, two municipal solid waste landfills, a drum storage unit, two bulk storage units, and other hazardous waste management facilities. The facility is currently undergoing expansion to ultimately reach 695.5 acres of operational areas, providing 5 million cubic yards of additional disposal volume, that will be used for waste disposal, including hazardous wastes. Expansion of the facility was approved in May 2014.

3.P.2 Regulatory Setting

Federal Regulations

No federal regulations related to utilities and service systems apply to the Project.

State Regulations

California Public Utilities Commission

The California Constitution vests the California Public Utilities Commission (CPUC) with the sole authority to regulate privately owned and investor-owned public utilities, such as PG&E and the San José Water Company. This exclusive power extends to all aspects of utility regulation, including facility location, design, construction, maintenance, and operation. CPUC requires regulated utilities to work closely with local governments and give due consideration to local government concerns. The CPUC does not regulate publicly owned utilities such as the District.

California Integrated Waste Management Act of 1989

The California Integrated Waste Management Act (CIWMA) of 1989 (Public Resources Code [PRC], Division 30), enacted through Assembly Bill (AB) 939 and modified by subsequent legislation, required all California cities and counties to implement programs to reduce, recycle, and compost at least 50 percent of wastes by the year 2000 (PRC Section 41780). A jurisdiction's diversion rate is the percentage of its total waste that it diverts from disposal through reduction, reuse, and recycling programs. The State determines compliance with the mandate to divert 50 percent of generated waste through a complex formula. This formula requires cities and counties to conduct empirical studies to establish a "base year" waste generation rate against which future diversion is measured. The diversion rates in subsequent years are then determined by deduction rather than by direct measurement of material recycled and composted; i.e., cities and counties track the amount of material disposed of at landfills, then subtract that amount from the base-year amount, and the difference is assumed to be diverted (PRC Section 41780.2).

Utility Notification Requirements

Title 8, Section 1541 of the California Code of Regulations requires excavators to determine the approximate locations of subsurface installations such as sewer, telephone, fuel, electricity, and water lines (or any other subsurface installations that may reasonably be encountered during excavation work) prior to opening an excavation.

California law (Government Code Section 4216 et seq.) requires owners and operators of underground utilities to become members of and participate in a regional notification center, such as USA North. USA North receives reports of planned excavations from public and private excavators and transmits the information to all participating members that may have underground facilities at the location of an excavation. USA North members mark or stake their facilities, provide information, or give clearance to dig (USA North, 2016).

Local Regulations

Envision San José 2040 General Plan

The *Envision San José 2040 General Plan* (General Plan) provides planning guidance for projects within the City of San José. Specific to utilities, the General Plan contains policies that pertain to the Project, including solid waste goals.

> **LOS-20:** For solid waste management, the City should seek to exceed 50% diversion of waste from disposal, maintain 20 years of landfill capacity, and provide for storage and collection of recyclables from every location where solid waste is generated.

City of San José Zero Waste Resolution (No. 74077)

In 2007, the City of San José adopted a Zero Waste Resolution (No. 74077), which set a goal of 75 percent waste diversion by 2013 and a goal of zero waste by 2022 for the City.

Construction and Demolition Ordinances

City of San José

The City of San José's Construction and Demolition ordinance applies to all new residential construction of $115,000 or more, new non-residential construction of $135,000 or more, residential alterations of $2,000 or more, non-residential alterations of $5,000 or more, and all roofing projects that involve the removal of the existing roof. Applicants for covered projects must submit a security deposit based on project size and established by city council resolution. Material from projects can be taken to a certified construction and demolition (C&D) recycling facility or contractors and residents can document how the material was otherwise diverted. Within 180 days of project completion, the applicant must submit documentation showing the material was taken to a certified C&D recycling facility or diverted some other way. The documentation must be submitted with a request for reimbursement in order to get the security deposit returned. The Construction and Demolition Diversion Program ensures that at least 75 percent of construction and demolition waste is recovered and diverted from landfills (City of San José, 2019).

3.P.3 Impacts and Mitigation Measures

Significance Criteria

Implementation of the Project would have a significant impact on public utilities if it were to:

- Require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electrical power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects;
- Have insufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years;

- Result in a determination by the wastewater treatment provider that would serve the project that it has inadequate capacity to serve the project's projected demand in addition to the provider's existing commitments;
- 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;
- Be out of compliance with federal, state, and local management and reduction statutes and regulations related to solid waste.

Approach to Analysis

The analysis of Project effects related to public utilities addresses temporary construction-related impacts as well as impacts during Project operation and maintenance. This analysis assumes that the District would comply with all applicable laws and regulations throughout construction, operation, and maintenance.

This analysis evaluates the effects of the landfill disposal requirements of the Project with respect to the available capacity of local landfills and the District's ability to comply with solid waste diversion rates.

No Impact Significance Determinations

Based on the nature of the Project, there would be no impact related to the following criterion:

Wastewater Treatment Requirements. No wastewater would be generated during construction or operations of the Project beyond existing uses, nor would the Project result in a decrease in quality of flows into the San José / Santa Clara Water Pollution Control Plant (WPCP) such that the Project would affect compliance with wastewater treatment requirements issued by the San Francisco Bay RWQCB, the agency that issues permits for discharge from the plant. The Project would not install new restrooms or other wastewater generating facilities or equipment.

Wastewater Facilities / Wastewater Treatment Capacity. The Project would not increase wastewater generation; therefore, no new wastewater treatment facilities would be required for the Project. The Project would not produce wastewater during construction or operations and would not affect the capacity of the San José / Santa Clara WPCP. Therefore, the Project would not require construction or expansion of wastewater facilities or affect the existing wastewater treatment capacity.

Impact Summary

Table 3.P-1 provides a summary of public utilities and service systems impacts by implementation phase (construction and operations).

TABLE 3.P-1
SUMMARY OF UTILITIES AND SERVICE SYSTEMS IMPACTS

Impact Statement	Construction	Operation
Impact 3.P-1: The Project would not require or result in the relocation or construction of new or expanded water treatment or storm water drainage, electrical power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects; the Project would not have insufficient water supplies available to serve the Project and reasonably foreseeable future development during normal, dry and multiple dry years.	LS	LS
Impact 3.P-2: The Project would not 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.	LS	LS
Impact 3.P-3: The Project would not be out of compliance with federal, state, and local management and reduction statutes and regulations related to solid waste.	LS	LS

LS = Less than significant

Impacts and Mitigation Measures

Impact 3.P-1: The Project would not require or result in the relocation or construction of new or expanded water treatment or storm water drainage, electrical power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects; the Project would not have insufficient water supplies available to serve the Project and reasonably foreseeable future development during normal, dry and multiple dry years. (Less than Significant)

Construction Impacts

Project construction would rely on existing on-site surface water for construction water needs, such as on-site dust control, and would not require the relocation or construction of new or expanded water treatment facilities, therefore the impact would be **less than significant**.

With respect to stormwater drainage, insomuch as Alamitos Creek can be considered a stormwater facility, the channel would be restored in the footprint of the lake and the impacts associated with this work are analyzed throughout the EIR. This section focuses on stormwater infrastructure installed by San José to convey stormwater from developed areas. Project construction would be managed so as to maintain capacity to manage storm flows in the event that a major storm event were to occur during the construction period, as discussed in Chapter 2, Project Description. Much of the construction work would be completed within the basin of Almaden Lake. Any stormwater occurring in these areas would drain into the lake bottom, where it would remain, temporarily, until being pumped out by the temporary construction pumping and dewatering system. Once sheet pile installation is complete, and creek, west bank, and new park area construction is complete, flows would be routed back to the creek, including during the rainy season. This would allow winter storm flows to pass through the construction area without damaging or substantially interfering with other construction activities. Storm drains that empty into the lake would be rerouted during construction for discharge into the creek. After the installation of in-situ columns and construction of the levee, the sheet piles would be removed.

With respect to stormwater flows originating from the Project site during construction, the contractor would be responsible for implementing all BMPs for stormwater pollution prevention and control applicable to Project construction in compliance with the National Pollutant Discharge Elimination System (NPDES) Construction General Permit. The stormwater BMPs would be applied in accordance with the California Stormwater Quality Association "Stormwater Best Management Practice Handbook."[1] With the implementation of stormwater BMPs during construction, the Project would not overburden existing stormwater drainage facilities such that they would require or result in the relocation or construction of new or expanded stormwater drainage facilities, therefore the impact would be **less than significant**.

Project construction would rely upon electricity provided by PG&E. Construction of the Project would not require natural gas. The telecommunications needs of the Project (construction-coordination cellular phone calls and GPS data) would be adequately served by the multiple telecommunications companies providing service in the Project area. Project construction would not require or result in the relocation or construction of new or expanded electrical power, natural gas, or telecommunications facilities, therefore the impact would be **less than significant**.

With regard to sufficiency of water supplies, once most of the lake water is drained during the initial part of construction, it is anticipated that dewatering of shallow lake sediments may be required prior to construction of the levee foundation and grading of the lake bed. The Project area would be dewatered using sump pumps, well points, removal of wet and soft material, and/or installation of temporary drainage management facilities around excavations. Once captured, dewatered water would be pumped into baker tanks to allow sediments to settle. Following settlement, captured water would be used for on-site dust control and/or be released into the creek in accordance with regulatory requirements. Because this shallow groundwater is available for on-site dust control, no other water supplies would be required during Project construction, therefore the impact related to insufficient water supply would be **less than significant**.

Operations Impacts

As described in Chapter 2, Project Description, a lake water level ranging from 188 feet to190 feet above msl (consistent with existing conditions) would be maintained with imported water from the Almaden Valley Pipeline. The Almaden Valley Pipeline is located approximately 0.5 miles upstream from Almaden Lake Park on Alamitos Creek. Imported water would be conveyed in an approximately 2,900-foot underground pipe aligned between the east side of the Los Alamitos Creek Trail and the west side of Crossview Circle/Court (see Figure 2-4). It is estimated that the Project would require approximately 600 acre-feet of water to fill the re-contoured and capped lake following construction. A water budget

1 California Stormwater Quality Association (CASQA) best management practices handbooks are available to CASQA members online at: https://www.casqa.org/resources/bmp-handbooks/.

prepared for maintaining the lake determined that approximately 7.5 cubic feet per second (cfs) of water would be needed in the summer months to circulate through the lake to maintain water quality to support recreational uses (equivalent to 15 acre-feet a month). The remainder of the year would be slightly less (approximately 5 cfs) for a total of approximately 4,350 acre feet a year (AFY). To circulate the water, an equal amount of water would be pumped from the lake via an outlet structure into a new pipeline connecting to Los Alamitos Percolation Pond.

Under existing operations, the Los Alamitos Percolation Pond can be filled when the Alamitos Flashboard Dam is installed at the Alamitos Drop Structure. The Los Alamitos Percolation Pond and Guadalupe Percolation Ponds (which are fed by the Los Alamitos Percolation Pond) have a model recharge capacity of 22 acre-feet per day, or about 8,000 AFY. The water diverted to the percolation ponds can come from various water rights owned by the District (3,302 AFY from Guadalupe River; 2,500 AFY from Almaden Reservoir; 6,000 AFY from the Almaden-Calero Canal; 3,500 AFY from Calero Reservoir; and 3,500 AFY from Guadalupe Reservoir), or from imported water that can be released at Calero Reservoir, Alamitos Creek, or Guadalupe Creek to flow downstream to the Alamitos diversion. Almaden Valley Pipeline water is typically imported water under the District's Central Valley Project (CVP) contract, and comes from the delta via San Luis Reservoir through a series of pipes that brings water into Santa Clara County for distribution to water treatment plants, percolation facilities, Anderson Reservoir, Calero Reservoir, and/or local creeks for in-stream recharge. In addition to imported water, the Almaden Valley Pipeline can convey water captured at Anderson Reservoir and Calero Reservoir for water supply uses.

Since imported water sent to Almaden Lake from Almaden Valley Pipeline would ultimately be used for groundwater recharge in the Los Alamitos Percolation Pond, there would be no need to make legal changes to the use of the water. The Los Alamitos Percolation Pond would need to be operated to account for inputs from both Almaden Lake and the Alamitos diversion, but the overall change would not substantially alter the amount of water available for groundwater recharge.

As described in Chapter 2, Project Description, there could be times when the District would not be able to provide Almaden Valley Pipeline water to Almaden Lake, including due to drought conditions, insufficient imported water supply, periodic system maintenance, or higher pressing water supply needs elsewhere in Santa Clara County. In these circumstances water would not be provided to Almaden Lake, and the District could also temporarily suspend pumping lake water to Los Alamitos Percolation Pond. Should availability of Almaden Valley Pipeline water be temporarily suspended, the District would expect Almaden Lake water levels to remain relatively stable due to the underlying soil properties of the lake bed. The existing soils remaining in the lake bed after quarry operations ceased have low permeability properties, and would not be conducive to lake water percolation into groundwater. In addition, the Project would cap the lake bed with an impermeable clay layer about 2.5 feet thick, further reducing the ability of lake water to percolate into groundwater. As a result, lake water levels would remain generally stable during periods when Almaden Valley Pipeline water would not be supplied (and outlet pumping from the lake to the percolation Pond would be similarly suspended), with lake water losses generally being limited to evaporation.

The use of imported Almaden Valley Pipeline water for Project operations would not require or result in the relocation or construction of new or expanded water facilities. During temporary periods when Almaden Valley Pipeline water would not be available for the lake flow-through water system, lake water levels would remain generally stable due to underlying lake bed soil impermeability. As a result, should insufficient water supplies be available to serve the Project under reasonably foreseeable future development during normal, dry and multiple dry years, the District would temporarily suspend pumping lake water to the percolation Pond. Under these circumstances, the District would expect lake water levels to remain generally stable due to underlying lake bed soil impermeability until inflows of Almaden Valley Pipeline water could resume; therefore, this impact would be **less than significant**.

With respect to stormwater drainage, stormwater within the Project footprint is currently managed on site, and would continue to be managed on site under the Project. Herein, stormwater collected on site would be discharged into the upgraded stream on site (western portions of the Project site) or into Almaden Lake. The Project would result in an increase in park land area in comparison to existing conditions, but would not substantially increase impervious surface area, and therefore would not result in a substantial net increase in stormwater on site. During storms, water would be collected in swales or catchments, including applicable stormwater BMPs, before being released into adjacent waterways on site. For a discussion of BMPs and other stormwater management facilities that would be deployed in support of the Project, please refer to the stormwater impact analysis contained in Section 3.K, Hydrology and Water Quality. The Project would not increase stormwater discharges to offsite, and therefore would not require or result in the relocation or construction of new or expanded offsite stormwater management facilities, and this impact would be considered **less than significant**.

Operations and maintenance of the Project would be similar to existing Project operations with respect to electricity, natural gas, and telecommunications supply. Project operations would rely upon electricity and natural gas provided by PG&E and would require provision of the electrical requirements of the pump station with a pumping capacity of up to 20 cfs. The telecommunications needs of the Project would be adequately served by the multiple telecommunications companies providing service in the Project area. Project operations would not require or result in the relocation or construction of new or expanded electrical power, natural gas, or telecommunications facilities, therefore the impact would be **less than significant**.

Mitigation Measures

None required.

Impact 3.P-2: The Project would not 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)

Construction Impacts

As described in Section 2.E.2, Construction Phases, Excavation and Fill, the bottom lake and shoreline soil would be suitable for on-site reuse for re-contouring Almaden Lake or reconfiguring the channel of Alamitos Creek, or may require disposal offsite at a non-hazardous Class III landfill consistent with California thresholds for hazardous waste classification. As shown in Table 2-2, the Project is estimated to generate approximately 194,000 cubic yards of cut volume, and is estimated to require approximately 897,690 cubic yards of fill volume. To the extent feasible, the Project would utilize the cut volume generated on-site.

However, some lake bottom soil samples exceeded environmental screening levels (ESLs) established by the San Francisco Bay RWQCB (December 2013), and non-landfill re-use options may be limited (LA&S, 2014; LA&S, 2015). Therefore, all cut material would be stockpiled in the lake body for reuse as fill material in the lake and creek bed. All fill at the lake bottom would be capped by a imported clay layer about 2.5 feet thick, sealing sediments contaminated with mercury at the bottom of the lake and preventing its entry into the food chain. Up to 25,000 cubic yards of soils that exceed California thresholds for hazardous waste may be transported to an approved disposal site in Kettleman, California or Utah (SCVWD, 2015b). If any soil is found to contain hazardous materials, excess spoils would be characterized, transported from the Project site in lined container trucks, and disposed of at an appropriate landfill in compliance with federal, State, and local regulations. Refer to Section 3.J, Hazards and Hazardous Materials, for information regarding disposal of hazardous materials. Based on existing available capacity and operations, as well as anticipated near term expansion, it is anticipated that the Kettleman, California site would have sufficient capacity to accept this volume of waste;[2] however, conservatively, even in the event that disposal capacity is not available, hazardous sediments would be shipped to Utah for disposal.

The Project would also generate other construction and demolition waste. As described in Section 3.P.2, Regulatory Setting, the City of San José's Construction and Demolition Debris Ordinance and Zero Waste Resolution (No. 74077) require that at least 75 percent of waste tonnage is diverted. Approved facilities that accept mixed C&D debris for sorting and recycling include the following: Guadalupe Sanitary Landfill in San José; Kirby Canyon Recycling and Disposal Facility in San José; Newby Island Sanitary Landfill in San José; Zanker Material Processing Facility in San José; and Zanker Road Resource Recovery Operations Landfill in San José (CalRecycle, 2016). It is anticipated that the receiving landfill(s) would receive up to 500 cubic yards of C&D materials, which would include primarily concrete, over the construction period. Because cut volumes would be reused on site to the extent feasible, hazardous soils would be taken to an appropriate disposal facility,

[2] The facility is located on 1,600-acre property with 499 acres currently available and permitted for waste management activities http://kettlemanhillslandfill.wm.com/fact-sheets/2011/facility-overview.jsp.

and adequate capacity exists at the local receiving landfills for construction and demolition waste materials described above, impacts related to generating solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impairing the attainment of solid waste reduction goals during construction would be **less than significant**.

Operations Impacts

The City of San José would continue to be responsible for collecting litter around the perimeter of the lake and for trash and debris removal from within the Park. City removal of solid waste generated during Park operations would be similar to existing conditions, and would not be part of the Project. Landfills serving the City include Guadalupe, Kirby Canyon, Newby Island, Zanker Material Processing Facility, and Zanker Road. Closure dates for three of the landfills range from 2021 to 2025 with Newby Island Landfill having a permit to continue operating through 2041 (CalRecycle, 2019), and the Zanker landfills having no closure date due to the minimal amount of materials being landfilled each year at both these facilities. The total permitted landfilling capacity of the five operating landfills in the City is approximately 5.3 million tons per year (San José, 2011). Available landfills would easily maintain sufficient capacity to accept the volumes of operation period solid waste.

As described in Section 2.F.1, Long-Term Monitoring and Maintenance Activities, disposal of debris from routine creek channel maintenance, such as sediment removal or erosion repair could require the removal of up to 5,000 cubic yards of material from the Alamitos Creek section every 10 years. Excavated sediment would be reused on site where feasible, or would be disposed of at a landfill or other suitable site, and would comply with all applicable regulations for disposal of solid waste.

For the reasons described above, it is expected that the landfills in the vicinity of the Project site would have adequate capacity to accommodate this infrequent disposal, and impacts related to generating solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impairing the attainment of solid waste reduction goals during operation and maintenance would be **less than significant.**

Mitigation Measures

None required.

Impact 3.P-3: The Project would not be out of compliance with federal, state, and local management and reduction statutes and regulations related to solid waste. (Less than Significant)

Construction Impacts

Project construction would generate waste materials, including construction debris and excavated spoils that could exceed the local waste diversion goals or daily tonnage limit of local landfills, which would be a significant impact. However, the City of San José's Construction and Demolition Ordinance prohibits C&D materials from being placed into the trash or sent directly to a landfill. Compliance with this ordinance would ensure that all Project-related waste would be taken to a registered facility, which would arrange for the proper recycling, reuse, and disposal of the C&D materials that the Project produces. The C&D program requires that at least 75 percent of C&D debris is recovered and diverted from landfills. Therefore, construction impacts related to compliance with federal, State, and local solid waste management and reduction statutes and regulations would be **less than significant**. If any soil is found to contain hazardous materials, excess spoils would be characterized, transported from the Project site in lined container trucks, and disposed of at an appropriate landfill in compliance with federal, State, and local regulations. Refer to Section 3.J, Hazards and Hazardous Materials, for information regarding disposal of hazardous materials.

Operations Impacts

As noted above, disposal of debris from routine creek channel maintenance, such as sediment removal or erosion repair could require the removal of up to 5,000 cubic yards of material from the Alamitos Creek section every 10 years. Excavated sediment would be reused on site where feasible, or would be disposed of at a landfill or other suitable site, and would comply with all applicable regulations for disposal of solid waste.

Vegetation management, trash and debris removal within the Park, including the new Park elements, would continue to be the responsibility of the City of San José. Therefore, operations impacts related to compliance with federal, State, and local solid waste statutes and regulations would be **less than significant**.

Mitigation Measures

None required.

3.P.4 References

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CHAPTER 4
Alternatives

4.A Introduction

This chapter presents the California Environmental Quality Act (CEQA) alternatives analysis for the Almaden Lake Improvement Project (Project). The CEQA Guidelines, Section 15126.6(a), state that an Environmental Impact Report (EIR) must describe and evaluate a reasonable range of alternatives to the Project that would feasibly attain most of the Project's basic objectives and would avoid or substantially lessen any identified significant adverse environmental effects of the Project. Specifically, the CEQA Guidelines (Section 15126.6) set forth the following criteria for selecting and evaluating alternatives:

- ***Identifying Alternatives*****.** The selection of alternatives is limited to those that would avoid or substantially lessen any of the significant effects of the project, are feasible, and would attain most of the basic objectives of the project. Factors that may be considered when addressing the feasibility of an alternative include site suitability, availability of infrastructure, general plan consistency, other plans or regulatory limitations, jurisdictional boundaries, economic viability, and whether the proponent can reasonably acquire, control, or otherwise have access to an alternative site. An EIR need not consider an alternative whose impacts cannot be reasonably ascertained and whose implementation is remote and speculative. The specific alternative of "no project" must also be evaluated.

- ***Range of Alternatives.*** An EIR need not consider every conceivable alternative, but must consider and discuss a reasonable range of feasible alternatives in a manner that will foster informed decision-making and public participation. The "rule of reason" governs the selection and consideration of EIR alternatives, requiring that an EIR set forth only those alternatives necessary to permit a reasoned choice. The lead agency (the Santa Clara Valley Water District [District]) is responsible for selecting a range of project alternatives to be examined and for disclosing its rationale for choosing the alternatives.

- ***Evaluation of Alternatives.*** EIRs are required to include sufficient information about each alternative to allow meaningful evaluation, analysis, and comparison with the proposed project. Matrices may be used to display the major characteristics and the environmental effects of each alternative. If an alternative would cause one or more significant effects that would not result from the project as proposed, the significant effects of the alternative must be discussed, but in less detail than the significant effects of the project.

Section 4.B describes the alternatives selection process and the objectives of the Project; summarizes the significant impacts of the Project; describes the alternatives selected for detailed analysis; and compares the environmental impacts of each alternative to those of the Project. Section 4.C provides a comparison of the alternatives, and identifies the environmentally superior alternative. Section 4.D discusses the preliminary alternatives that were considered, but rejected from further consideration.

4.B Almaden Lake Improvement Project Alternatives Analysis

This section describes the process of developing a reasonable range of Almaden Lake Improvement Project alternatives for analysis in this EIR. Consistent with CEQA, the approach to alternatives selection for this EIR focused on identifying alternatives that: (1) could meet most of the basic objectives of the Project while reducing one or more of its significant impacts, (2) could foster informed decision-making and public participation, and (3) could be feasibly implemented.

The alternatives selection process considered multiple alternatives by the District. Certain alternatives were eliminated from consideration based on their inability to meet most of the Project's basic objectives, their infeasibility, or their inability to reduce the Project's environmental impacts. CEQA Guidelines Section 15364 defines "feasible" as "capable of being accomplished in a successful manner within a reasonable period of time, taking into account economic, environmental, legal, social, and technological factors." CEQA Guidelines Section 15126.6(f)(1) states that "the factors that may be taken into account when addressing the potential feasibility of alternatives include site suitability, economic viability, availability of infrastructure, general plan consistency, other plans or regulatory limitations, jurisdictional boundaries (projects with a regionally significant impact should consider the regional context), and whether the proponent can reasonably acquire, control, or otherwise have access to the alternative site (or the site is already owned by the proponent)."

4.B.1 Project Objectives

As discussed in Chapter 2, Project Description, Section 2.C.3, Project Objectives, the purpose of the Project is to restore Alamitos Creek's stream function within the footprint of Almaden Lake Park (Park) to improve physical habitat for steelhead and other anadromous fish, while improving water quality within the Almaden Lake (lake) footprint, and minimizing impacts to existing recreational features within Almaden Lake Park. This purpose would be accomplished through the following objectives:

- Separate Alamitos Creek from Almaden Lake.
- Reduce production of methylmercury, and mercury in target fish in Almaden Lake to meet applicable water quality objectives.
- Remove potential lake entrainment of anadromous fish.
- Improve temperature conditions and reduce predation for native fish.
- Minimize impacts to existing recreational features.

The District is proposing this Project, which includes isolating Alamitos Creek from the lake and restoring its upstream and downstream connectivity, re-contouring the lake bottom and capping it with clean fill, expanding the Park into the existing lake and beach areas, expanding the existing island and constructing a new island, establishing vegetation, and connecting the lake to a water source.

Separating Alamitos Creek from Almaden Lake would restore Alamitos Creek's upstream and downstream connectivity within the Guadalupe River Watershed, restoring habitat linkages for native fish and threatened anadromous fish species, and would create a geomorphically stable creek channel that would improve sediment transport and restore natural creek functions. Therefore, the Project would help to restore and maintain healthy fish populations by improving fish habitat and passage in the creek channel.

Leveling the irregular lake bottom and capping existing elemental mercury in the lake bed would assist in addressing Almaden Lake's mercury-related water quality issues. Re-contouring the lake bottom, continuing effective control measures (e.g., operation of SolarBee solar powered circulators) to manage future methylmercury production and bioaccumulation in fish, and utilizing a water source that minimizes the reintroduction of mercury to the lake would promote the ability of the District to meet the water quality objectives laid out by the San Francisco Bay Regional Water Quality Control Board (RWQCB) in the 2008 Basin Plan Amendment (RWQCB, 2008).

4.B.2 Significant Environmental Impacts

This section summarizes the impacts of the Project, as analyzed in Chapter 3, Environmental Setting, Impacts, and Mitigation Measures and Chapter 5, Cumulative Impacts, of this EIR, and that were considered during the alternatives identification process.

Long-Term Impacts

Project operation would result in the following significant long-term impact, which could be mitigated to a less than significant level with the implementation of mitigation measures identified in Chapter 3, Environmental Setting, Impacts, and Mitigation Measures:

- ***Noise.*** The applicable City of San José (City) Municipal Code noise exposure limits for Project-related operational noise exposure is 55 dB DNL (day-night average level) at residential uses and 60 dB DNL at commercial uses in the Project vicinity. Estimated noise from the Project's water pump station along the northern end of the lake would generate a DNL of 61 dBA for the closest receptors at the residences in Almaden Lake Village. This value exceeds the operational noise threshold for residential uses and is, therefore, considered a significant impact (Impact 3.L-1, LSM).

Short-Term Impacts

All short-term construction impacts could be mitigated to a less than significant level with the implementation of mitigation measures identified in Chapter 3, Environmental Setting, Impacts, and Mitigation Measures, except for aesthetic impacts to visual character of the Project site, which would be unavoidable. Project construction would result in the following significant short-term impacts:

- ***Aesthetics.*** Project related construction would diminish the visual character of the Project site until restoration planting are established. (Impact 3.A-3, SU)
- ***Air Quality.*** Project-related construction activities at the Project site may cause wind-blown dust that could emit particulate matter into the atmosphere. Equipment exhaust

could cause an exceedance of standards for nitrogen oxides (NO_X). Likewise, toxic air contaminants (TAC), namely diesel particulate matter (DPM), could cause a cancer risk in excess of Bay Area Air Quality Management District (BAAQMD) thresholds. If these impacts are not mitigated, the Project would be in violation of BAAQMD's 2017 Bay Area Clean Air Plan. (Impacts 3.C-1, 3.C-2, and 3.C-3, LSM).

- ***Biological Resources.*** Project construction activities could be disruptive to special-status birds – such as double-crested cormorant[1] and protected herons and egrets – nesting migratory birds and raptors, and roosting bats through the temporary removal of nesting, roosting, and foraging habitat and human activity (Impact 3.D-1, LSM).

  The removal or damage of street trees and trees would conflict with local policies related to tree removal or disturbance (Impact 3.D-6, LSM).

- ***Fisheries Resources.*** Dewatering and native fish relocation, has the potential to result in significant impacts of native fish species (Impact 3.E-1, LSM).

- ***Cultural Resources and Tribal Cultural Resources.*** Based on the records search, survey, and previous disturbance, there are no known archaeological resources or human remains in the APE. There is a low potential for archaeological resources and human remains to be uncovered during ground disturbing activities. Despite the low potential, the inadvertent discovery of archaeological resources, human remains, or tribal cultural resources cannot be entirely discounted. The possibility of inadvertent discovery would result in a significant impact (Impact 3.F-1, LSM).

- ***Energy.*** While the overall fuel use requirements would not be significant relative to the overall sales of fuels in the County, construction activities could result in wasteful or inefficient use of energy fuels. The potential for construction activities to use large amounts of fuel or energy in a wasteful or inefficient manner would be a significant impact (Impact 3.G-1, LSM).

- ***Hydrology and Water Quality.*** Construction of the Project would cause disturbance of bottom sediments during the draining of the lake stirring up mercury concentrated sediments. As this water is released from the lake to downstream receiving waters degrading water quality. (Impact 3.K-1, LSM).

  Project construction would result in the closure and draining of Almaden Lake, taking it out of commission for flood storage. Flood flows would be routed behind a diversion structure (i.e., sheet piles) enabling creek baseflow and stormwater to pass downstream. Unless properly designed, the diversion structure could result in a temporary constriction of flows in the creek. If a major storm event were to occur during the Project construction period, the temporary conveyance could be insufficient to pass flows downstream, which could result in accidental release of flows into the Almaden Lake work area, creating potential hazards to Project workers and construction equipment (Impact 3.K-3, LSM).

- ***Noise.*** Construction of the Project would exceed the applicable noise threshold criteria associated with off-site traffic if all Project construction traffic would access the site either via the Guadalupe River Trail from Coleman Road (north of Almaden Lake Village) or Winfield Boulevard (south of Coleman Road) (worst-case scenarios); this construction impact would be considered significant (Impact 3.L-1, LSM).

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1 Double-crested cormorant is not special-status species, however, nesting colonies for the double-crested cormorant are on the CDFW Watch List and have previously been listed as a California species of special concern. As such, impacts to the cormorant are included herein.

Cumulative Impacts

Construction and operation of the Project would contribute to the significant cumulative impacts listed below. All cumulative impacts would be reduced to a less than cumulatively considerable level by mitigation measures identified in Chapter 5.

- ***Air Quality.*** Equipment exhaust could cause an exceedance of standards for nitrogen oxides (NO_X). If this impact is not mitigated, the Project would be in violation of BAAQMD's 2017 Bay Area Clean Air Plan.
- ***Biological Resources.*** Project construction activities could be disruptive to special-status birds – such as nesting colonies of double-crested cormorant and protected herons and egrets – nesting migratory birds and raptors, and roosting bats through the temporary removal of nesting, roosting, and foraging habitat and human activity. The removal or damage of street trees and trees would conflict with local policies related to tree removal or disturbance.
- ***Fisheries Resources.*** Dewatering and native fish relocation has the potential to result in significant impacts to native fish species.
- ***Cultural Resources and Tribal Cultural Resources.*** Based on the records search, survey, and previous disturbance, there are no known archaeological resources or human remains in the APE. There is a low potential for archaeological resources and human remains to be uncovered during ground disturbing activities. Despite the low potential, the inadvertent discovery of archaeological resources, human remains, or tribal cultural resources cannot be entirely discounted.
- ***Energy.*** *C*onstruction activities could result in wasteful or inefficient use of energy resources.
- ***Noise.*** Construction activities would contribute to the noise environment in the Project area. The water pump station would contribute noise that could exceed allowable noise levels at nearby residents.

4.B.3 Approach to Alternatives Selection

The alternatives selection process for the Project was guided, in part, by the magnitude and severity of the impacts identified above. Therefore, this analysis focuses on alternatives that could be implemented (i.e., are feasible), meet most of the Project objectives, and:

- Lessen or avoid short-term, construction-phase impacts; and/or
- Lessen or avoid long-term, operational-phase impacts.

4.B.4 Selected CEQA Alternatives

This section describes the Project alternatives that were selected and analyzed in accordance with CEQA Guidelines Section 15126.6(a). The three alternatives to the Project selected for detailed analysis in this EIR are:

- **Alternative 1:** No Project Alternative
- **Alternative 2:** Creek with East and West Lakes Alternative. This alternative would implement a 100-foot wide restored creek section with a 5-acre lake to its west and a

22-acre lake to its east. Construction of this alternative would require approximately 70,000 cubic yards less fill material, and would have an approximately 4-month shorter construction period resulting in reduced significant construction-related, short-term impacts (less than significant with mitigation).

- **Alternative 3:** Creek with East and West Open Space Alternative. This alternative would create a new 100-foot wide restored creek with a 5-acre open space to its west and a 22-acre open space to its east. This alternative would not require a pump station as it would not include a lake, eliminating the significant noise impact associated with pump station operation (less than significant with mitigation).

Table 4-1 provides a brief description of these alternatives and highlights how they differ from the Project. This section also evaluates the impacts of the selected alternatives relative to those of the Project. The evaluation is based on the available information and reasonable assumptions about how each alternative would be implemented. For each alternative, this section presents the following:

- A description of the alternative, including the rationale for its selection, and associated improvements and auxiliary components
- An evaluation of the alternative's ability to meet Project goals and objectives
- Analysis of the environmental impacts of each alternative compared to those of the Project

TABLE 4-1
SELECTED CEQA ALTERNATIVES

Alternative	How Does the Alternative Differ from the Project?
Alternative 1: No Project – The District would not restore the channel of Alamitos Creek, re-contour and cap the Almaden Lake floor, connect the lake to a water source, expand open space and island areas in Almaden Lake Park, and install riparian vegetation. The lake and Park would continue to operate as they currently do under existing conditions.	• The District would not construct a levee creating a geomorphically stable, self-sustaining channel for Alamitos Creek in addition to access ramps into the creek. • The District would not separate the lake area from the creek or construct a new boat launch ramp, and boat house. The lake bed would remain unnaturally varied. Elevated mercury levels in the water and fish tissue would continue, as well as high concentrations of coliform bacteria and blue-green algae. • The District would not expand the Park's open space area into the existing west beach and lake areas. • The District would not expand the existing island and create an additional island. • The District would not plant and maintain riparian vegetation around the lake, along the creek, and on the islands. • The District would not construct the Almaden Lake Source Water Connection with the Los Alamitos Percolation Pond to maintain water levels in the restored lake.
Alternative 2: Creek with East and West Lakes – The District would separate Alamitos Creek from Almaden Lake by constructing two levees, re-contour and cap the Almaden Lake bed, and construct two lakes, one on either side of the creek.	• The District would not build a new park area on the west side of the creek. Instead, a small 5-acre lake would be included west of the creek (West Lake). Construction of this alternative would use approximately 70,000 cubic yards less fill material, and have an approximately 4-month shorter construction period. • Alamitos Creek would be restored in an approximately 5-acre, 100-foot wide creek channel. • A sediment catchment area would be constructed at the upstream end of the creek. The restored creek would have riparian vegetation planted along both creek banks.

TABLE 4-1 (Continued)
SELECTED CEQA ALTERNATIVES

Alternative	How Does the Alternative Differ from the Project?
Alternative 2: Creek with East and West Lakes (cont.)	• Two levees would be constructed to separate the creek from Almaden Lake, and two lakes would exist on either side of the creek. The East Lake would be approximately 22 acres, and the West Lake would be approximately 5 acres. • Separate inlets and outlets for imported water would be created in the two lakes. A single pipeline would carry imported water from the Almaden Valley Pipeline. This pipeline would split just south of the lakes to supply water to the two separate lakes. Approximately 80 percent of the imported water would flow into the larger East Lake and approximately 20 percent would flow into the smaller West Lake. • As part of the flow-through water management system, each lake would have its own separate outlet structure at the north end of the lakes. Two pump stations and two outlet pipelines would be constructed. The two outlet pipelines from the lakes would converge just north of the lakes into a single pipeline conveying overflow water to the Los Alamitos Percolation Pond for groundwater recharge. Of the 4,350 AFY of potentially diverted overflow water, approximately 80 percent would flow from the larger East Lake and approximately 20 percent would flow from the smaller West Lake. The capacity of the West Lake pump station would be smaller than the East Lake pump station. • Up to five SolarBees would circulate water in the East Lake, and up to two SolarBees would circulate water in the West Lake.
Alternative 3: Creek with East and West Open Space – The District would separate Alamitos Creek from Almaden Lake. The remaining Almaden Lake area would be filled to create new open space areas on either side of the creek.	• The District would separate Alamitos Creek from Almaden Lake and fill the remaining lake area creating new open space areas to the east and west of the creek. Construction of this alternative would use approximately 100,000 cubic yards more fill material than the Project. • Operation of Alternative 3 would not require a pump station as there would be no lake, resulting in the elimination of the less than significant with mitigation operational noise impact of the Project. • Eliminates lake feature and recreational opportunities for pedal boating at Park. • Alamitos Creek would be restored in an approximately 5-acre, 100-foot wide creek channel. • Two creek banks would be constructed to restore the creek, and remaining lake areas on either side of the creek would be filled to ground level with clean fill. The east open space would be approximately 22 acres, and the west open space would be approximately 5 acres. • A sediment catchment area would be constructed at the upstream end of the creek. The restored creek would have riparian vegetation planted along both creek banks. • Clean fill in the former lake area would cover existing mercury-laden sediment. New open space areas would be planted with grass and trees and may be dedicated to the City for potential recreational development. • A maintenance road along the east creek embankment would provide maintenance access to the creek.

Table 4-2 summarizes the environmental impacts of the selected alternatives compared to those of the Project.[2] None of the action alternatives would reduce any of the Project's significant impacts or cumulatively considerable impacts (pre-mitigation) to less than significant levels.

2 The action alternatives would also contribute to significant cumulative impacts for the following resources: air quality, biological resources, fisheries resources, cultural and tribal resources, energy, and noise.

TABLE 4-2
COMPARISON OF THE ENVIRONMENTAL IMPACTS OF THE CEQA ALTERNATIVES

Impact	Project	Alternative 1: No Project	Alternative 2: Creek with East and West Lakes	Alternative 3: Creek with East and West Open Space
Impact 3.A-3: The Project would substantially degrade the existing visual character or quality of public views of the site and its surroundings and would not conflict with applicable zoning and other regulations governing scenic quality.	Project related construction would diminish the visual character of the Project site until restoration planting are established. (SU)	**No Impact** There would be no construction activities that could diminish the visual character of the Project site, and eliminate/alter views of the Lake.	**Decreased** Similar to the Project, Alternative 2 would result in diminished visual character of the Project site until restoration planting is established; however, the overall project construction timeline would be reduced compared to the Project. (SU)	**Increased** Alternative 3 would result in diminished visual character during construction and would import and place considerably more fill material than the Project to fill Almaden Lake; thus, Alternative 3 would likely require a longer construction timeline compared to the Project. (SU) Alternative 3 would remove Almaden Lake, resulting in a permanent change in overall visual character; from views of open water under existing conditions to views of a creek and landscaped areas under Alternative 3. (SU)
Impact 3.C-1: The Project would conflict with or obstruct implementation of the applicable air quality plan. (Less than Significant with Mitigation)	Project-related construction activities would include the use of diesel-powered construction equipment. To meet the 2017 Bay Area Clean Air Plan (CAP), the Project would need to meet CAP incentives and BAAQMD CEQA thresholds of significance. (LSM)	**No Impact** There would be no construction using diesel-power equipment or causing soil disturbance.	**Similar** Similar to the Project, Alternative 2 would support the primary goals of the 2017 CAP, and would not conflict with the applicable air quality plan. (LSM)	**Increased** Alternative 3 would import and place considerably more fill material than the Project to fill Almaden Lake. Construction would result in increased criteria pollutant emissions as well as increased emissions of fugitive dust, which could conflict with the primary goals of the 2017 CAP. (LSM – SU)
Impact 3.C-2: The Project would result in a cumulatively considerable net increase of a criteria pollutant for which the San Francisco Bay Area Air Basin is in non-attainment under applicable federal and state ambient air quality standards. (Less than Significant with Mitigation)	Criteria pollutant emissions of reactive organic gases (ROG), NO_X, PM_{10}, and $PM_{2.5}$ from construction equipment, worker trips, vendor trips, hauling trips, and locomotives associated with removed lake bed sediment via railroad could incrementally add to the regional atmospheric loading of these pollutants during construction of the Project. The use of on- and off-site construction equipment would cause an exceedance of the NO_X threshold.	**No Impact** There would be no construction using diesel-power equipment to generate these criteria pollutants, or construction activity creating wind-blown dust that would generate particulate matter.	**Decreased** By forgoing the new park area, Alternative 2 would utilize approximately 70,000 cubic yards less fill material than the Project resulting in a 4-month shorter construction period. As a result, this alternative would generate less construction-related NOx emissions than the Project. (LSM)	**Increased** Alternative 3 would import and place considerably more fill material than the Project to fill Almaden Lake. Transporting and placing this increased amount of fill material would result in increased criteria pollutant emissions as well as increased emissions of fugitive dust associated with construction activities. (LSM – SU)

TABLE 4-2 (continued)
COMPARISON OF THE ENVIRONMENTAL IMPACTS OF THE CEQA ALTERNATIVES

Impact	Project	Alternative 1: No Project	Alternative 2: Creek with East and West Lakes	Alternative 3: Creek with East and West Open Space
Impact 3.C-2 (cont.)	In addition to exhaust emissions, emissions of fugitive dust would also be generated by Project-related construction activities associated with grading and earth disturbance, travel on paved and unpaved roads, and other construction related activities, requiring dust control measures. (LSM)			
Impact 3.C-3: The Project would expose sensitive receptors to substantial pollutant concentrations (Less than Significant with Mitigation).	Project-related construction activities would include the use of diesel-powered construction equipment that would emit toxic air contaminants (TAC), namely diesel particular matter (DPM). The exposure risk would be 23.1 in 1.0 million, in exceedance of the BAAQMD thresholds of 10 in 1.0 million. (LSM)	**No Impact** There would be no construction using diesel-power equipment to generate TACs.	**Decreased** Alternative 2 would have a shorter construction period than the Project, and would generate fewer diesel-powered construction equipment trips resulting in lower emissions of TACs and lower levels of exposure to sensitive receptors. (LSM)	**Increased** Alternative 3 would require the importing and placing considerably more fill than the Project, and would generate more diesel-powered construction equipment trips resulting in increased emissions of TACs and increased levels of exposure to sensitive receptors. (LSM)
Impact 3.D-1: Construction or operation of the Project would have a substantial effect on special-status birds, common nesting migratory birds and raptors, and roosting bats in the Study Area. (Less than Significant with Mitigation).	Project construction activities could be disruptive to special-status birds, nesting migratory birds and raptors, and roosting bats through the temporary removal of nesting, roosting, and foraging habitat and human activity. (LSM)	**No Impact** There would be no earth-moving activities or removal of trees or other construction activities that would be disruptive to special-status birds, nesting migratory birds and raptors, and roosting bats.	**Decreased** Construction of Alternative 2 would be somewhat less disruptive to special-status birds, nesting migratory birds and raptors, and bats than the Project. Construction activities such as earthwork, fugitive dust, noise, vibrations, visual disturbance, and human activity would be somewhat lessened under this alternative. Ground disturbance activities associated with pipeline construction may be somewhat more extensive under this alternative. (LSM)	**Increased** Construction of Alternative 3 would be more disruptive to special-status birds, nesting migratory birds and raptors, and bats than the Project. Construction activities such as earthwork, fugitive dust, noise, vibrations, visual disturbance, and human activity would be increased under this alternative compared to the Project. Converting the lake to open space area would remove lacustrine and freshwater marsh habitat from the Project area, which would be detrimental to species reliant on aquatic habitats. (LSM)

TABLE 4-2 (continued)
COMPARISON OF THE ENVIRONMENTAL IMPACTS OF THE CEQA ALTERNATIVES

Impact	Project	Alternative 1: No Project	Alternative 2: Creek with East and West Lakes	Alternative 3: Creek with East and West Open Space
Impact 3.D-6: The Project would conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance.	Project construction activities would result in the removal or damage of street trees and trees within parks, and would conflict with local policies related to tree removal or disturbance. (LSM)	**No Impact** There would be no construction-related disruption of street trees and trees within parks, and no conflict with local policies related to tree removal or disturbance.	**Similar** Alternative 2 construction activities would result in the removal or damage of street trees and trees within parks, and would conflict with local policies related to tree removal or disturbance, similar to the Project. (LSM)	**Decreased** Alternative 3 construction activities would not include disturbance associated with pipeline corridors. Removal or damage of street trees and trees within parks would be confined to the Park and creek inlet/outlet, resulting in somewhat decreased tree disturbance and decreased conflict with local policies related to tree removal or disturbance. (LSM)
Impact 3.E-1: Construction and operation of the Project would have a substantial effect on special-status native fish and their aquatic habitat in Almaden Lake and Alamitos Creek. (Less than Significant with Mitigation)	Dewatering and subsequent construction, including relocation of native fish, has the potential to result in significant impacts on native fish species. (LSM)	**No Impact** No construction-related disruption to special-status fish and their aquatic habitat. **Adverse Impact** Current mercury contamination would continue in the lake, which is in exceedance of RWQCB water quality standards, and numeric targets for fish tissue mercury concentrations would continue to be in exceedance of mercury thresholds. Lake and creek aquatic habitats would continue to be intermingled, resulting in the continuation of poor aquatic habitat for special-status fish.	**Similar** Alternative 2 would undertake similar creek habitat restoration activities that would require dewatering and subsequent construction with the potential to result in significant impacts on native fish species. Similar to the Project, however, overall post-Project conditions should provide substantial benefit to native fish species through the restoration of the system to a more natural state. Because Alamitos Creek would be confined to a narrower corridor under Alternative 2, the habitat quality of the restored creek channel would likely to lower under this alternative as compared to the Project. (LSM)	**Similar** Alternative 3 would undertake similar creek habitat restoration activities that would require dewatering and subsequent construction with the potential to result in significant impacts on native fish species. Similar to the Project, however, overall post-Project creek conditions should provide substantial benefit to native fish species through the restoration of the system to a more natural state. Because Alamitos Creek would be confined to a narrower corridor under Alternative 3, the habitat quality of the restored creek channel would likely be lower under this alternative as compared to the Project. (LSM)
Impact 3.F-1: The Project would cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5, human remains, or a tribal cultural resource defined in Section 21074. (Less than Significant with Mitigation)	Based on the records search, survey, and previous disturbance, there are no known archaeological resources or human remains in the area of potential effects (APE). There is a low potential for archaeological resources and human remains to be uncovered during ground disturbing activities. Despite the low potential, the inadvertent discovery of archaeological resources, human remains, or tribal cultural resources cannot be entirely discounted. The possibility of inadvertent discovery would result in a significant impact. (LSM)	**No Impact** There would be no construction that would inadvertently expose significant archaeological materials, disturb human remains, or tribal cultural resources.	**Similar** Alternative 2 would have the same low potential for inadvertent discovery of archaeological resources, human remains, or tribal cultural resources during ground disturbing activities as the Project. (LSM)	**Decreased** Alternative 3 would have less potential for inadvertent discovery of archaeological resources, human remains, and tribal cultural resources during ground disturbing activities than the Project, because the lake would not be graded and would not involve the installation of pipelines to supply water to the lake. (LSM)

TABLE 4-2 (continued)
COMPARISON OF THE ENVIRONMENTAL IMPACTS OF THE CEQA ALTERNATIVES

Impact	Project	Alternative 1: No Project	Alternative 2: Creek with East and West Lakes	Alternative 3: Creek with East and West Open Space
Impact 3.G-1: The Project would result in wasteful, inefficient, or unnecessary consumption of energy resources during Project construction or operation (Less than Significant with Mitigation)	While the overall fuel use requirements would not be significant relative to the overall sales of fuels in the County, construction activities could result in wasteful or inefficient use of energy fuels. The potential for construction activities to use large amounts of fuel or energy in a wasteful or inefficient manner would be a significant impact. (LSM)	**No Impact** No wasteful, inefficient, or unnecessary consumption of energy resources during Project construction.	**Decreased** Alternative 2 would require a shorter construction period than the Project resulting in less potential for construction activities to result in wasteful or inefficient use of energy resources. (LSM)	**Increased** Alternative 3 would require a longer construction period than the Project resulting in greater potential for construction activities to result in wasteful or inefficient use of energy resources. (LSM)
Impact 3.K-1: The Project would violate water quality standards or waste discharge requirements, conflict with or obstruct implementation of the Basin Plan, or otherwise substantially degrade surface or groundwater quality. (Less than Significant with Mitigation)	Construction of the Project would cause disturbance of bottom sediments during the draining of the lake stirring up mercury concentrated sediments. As this water is released from the lake to downstream receiving waters degrading water quality. (LSM) The Project would have a net benefit to water quality in the lake by reducing elemental mercury concentrations and greatly alleviating methylmercury production in Almaden Lake, reducing algal concentrations, improving dissolved oxygen levels, and reducing or removing select sources of nutrients to the lake. (Beneficial)	**No Impact** There would be no construction activities that would cause violation of water quality standards. **Adverse Impact** The current water quality issues of mercury contamination, low dissolved oxygen, coliform bacteria, and algal blooms would remain.	**Similar** Alternative 2 would have the same impacts associated with draining the lake. (LSM) **Similar** Operation of Alternative 2 would similarly have a net benefit on water quality in the lake. (Beneficial)	**Similar** Construction of Alternative 3 would have the same impacts associated with draining the lake. (LSM) **No Impact** Alternative 3 would convert Almaden Lake to open space. Lake water would be permanently removed. Operational lake water quality would be irrelevant. (NI)
Impact 3.K-3: The Project would substantially alter the existing drainage patterns 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 could: (i) result in substantial erosion or siltation 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 planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or (iv) impede or redirect flood flows. (Less than Significant with Mitigation)	During Project construction, the lake would not be utilized for flood storage. Flood flows would be routed behind sheet piles, enabling creek baseflow and stormwater to pass downstream. Unless properly designed, the diversion structure could result in a temporary constriction of flows in the creek. If a major storm event were to occur during construction, the temporary conveyance could be insufficient to pass flows downstream, which could result in accidental release of flows into the lake work area, creating potential hazards to Project workers and construction equipment. (LSM)	**No Impact** There would be no change in stormwater capture and flood flow conveyance at the lake and Park.	**Increased** This alternative would have a narrower creek channel in which to temporarily convey stormwater flows. In the event of a major storm event during construction, the narrower creek channel would have an increased potential for the conveyance to be insufficient to pass stormwater flows downstream, which could result in accidental release of flows into the lake work areas, creating increased potential hazards to Project workers and construction equipment. (LSM)	**Increased** This alternative would have a narrower creek channel in which to temporarily convey stormwater flows. In the event of a major storm event during construction, the narrower creek channel would have an increased potential for the conveyance to be insufficient to pass stormwater flows downstream, which could result in accidental release of flows into the adjacent open space work areas, creating increased potential hazards to Project workers and construction equipment. (LSM)

TABLE 4-2 (continued)
COMPARISON OF THE ENVIRONMENTAL IMPACTS OF THE CEQA ALTERNATIVES

Impact	Project	Alternative 1: No Project	Alternative 2: Creek with East and West Lakes	Alternative 3: Creek with East and West Open Space
Impact 3.L-1: The Project would generate 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 with Mitigation)	The City's General Plan establishes that residential uses within 500 feet of construction, and commercial uses within 200 feet of construction, may be adversely affected by construction noise. Existing residences to the north, west, and east of the Project site are located within 500 feet of the construction activities and could be significantly affected by Project-related construction noise. (LSM) In addition, construction of the Project would exceed the applicable noise threshold criteria associated with off-site traffic if all Project construction traffic would access the site either via the Guadalupe River Trail from Coleman Road (north of Almaden Lake Village) or Winfield Boulevard (south of Coleman Road) (worst-case scenarios); this construction impact would be considered significant. (LSM) The applicable City of San José Municipal Code noise exposure limits for Project-related operational noise exposure is 55 dB DNL at residential uses and 60 dB DNL at commercial uses in the Project vicinity. Estimated noise from the Project's water pump station along the northern end of the lake would generate a DNL of 61 dBA for the closest receptors at the residences in Almaden Lake Village. This value exceeds the operational noise threshold for residential uses. (LSM)	**No Impact** There would be no construction noise impacts or permanent impacts from the use of the Park and lake, beyond that currently existing.	**Decreased** The same construction equipment would be used for this alternative as for the Project. However, Alternative 2 would have a four-month shorter construction period. With a shorter construction period, there would be a decrease in the use of equipment that could exceed the noise limits of the City's General Plan and the applicable noise threshold criteria associated with off-site traffic in the vicinity of the Guadalupe River Trail and Winfield Boulevard near Coleman Road. (LSM) **Similar** Under the flow-through water management system, Alternative 2 would require two pump stations to pump water from the two lakes, as compared to one pump station proposed under the Project. However, the two pump stations would have a smaller capacity than the pump station proposed under the Project due to the reduced pumping requirements of the two lakes under Alternative 2. As a result, the noise generated by the two pump stations under Alternative 2 would be similar to the operational noise of the Project's pump station. (LSM)	**Increased** Similar construction equipment would be used for this alternative as for the Project. Alternative 3 would require considerably more fill material than the Project, resulting in a longer construction period. With a longer construction period, there would be an increase in the use of equipment that could exceed the noise limits of the City's General Plan and the applicable noise threshold criteria associated with off-site traffic. (LSM) **No Impact** Alternative 3 would convert Almaden Lake to open space, and would not require a pump station to convey lake water. Operation of this alternative would not involve the use of pumps resulting in the elimination of the operational noise impact. (NI)

Alternative 1: No Project Alternative

CEQA Guidelines Section 15126.6(e) requires that EIRs include an evaluation of the No Project Alternative to provide decision-makers the information necessary to compare the relative impacts of approving the Project and not approving the Project. The No Project Alternative is defined as a continuation of existing conditions, as well as conditions that are reasonably expected to occur in the event that the Project is not implemented.

Description of the No Project Alternative

In the event that the District does not approve the Project, the restoration of Alamitos Creek and Almaden Lake would not occur. The open area in the Park and the existing island in the lake would not be expanded, and the additional island would not be created. The flow-through water management system from Almaden Valley Pipeline to the Los Alamitos Percolation Pond would not be constructed. Restoration of levees, banks, and islands would not occur. Without these components in place, existing non-physical barriers to anadromous fish would remain in place and anadromous fish would continue to be subject to predation by warm water predators in the lake. Finally, the lake would remain in violation of the San Francisco Bay Regional Water Quality Control Board's total maximum daily load (TMDL) for mercury and site-specific objectives for mercury in fish tissue. It would continue to experience high concentrations of coliform bacteria and blue-green algae blooms. Current prohibitions on water-based activities at and in the lake would remain in force based on water quality testing.

Ability to Meet Project Objectives

The No Project Alternative would not meet any of the project objectives, which are to: separate Alamitos Creek from Almaden Lake; reduce production of methylmercury, and mercury in target fish in Almaden Lake to meet applicable water quality objectives; remove potential lake entrainment of anadromous fish; improve temperature conditions and reduce predation for native fish; and minimize impacts to existing recreational features. The current high levels of mercury and coliform bacteria, low dissolved oxygen concentrations, and blue-green algae blooms would continue and further prohibit uses of the lake, such as swimming. Guadalupe River, Almaden Lake, and Alamitos Creek would continue to be poor habitat for fish passage to upstream spawning habitat in the Alamitos Creek watershed.

Environmental Impacts of the No Project Alternative Compared to those of the Project

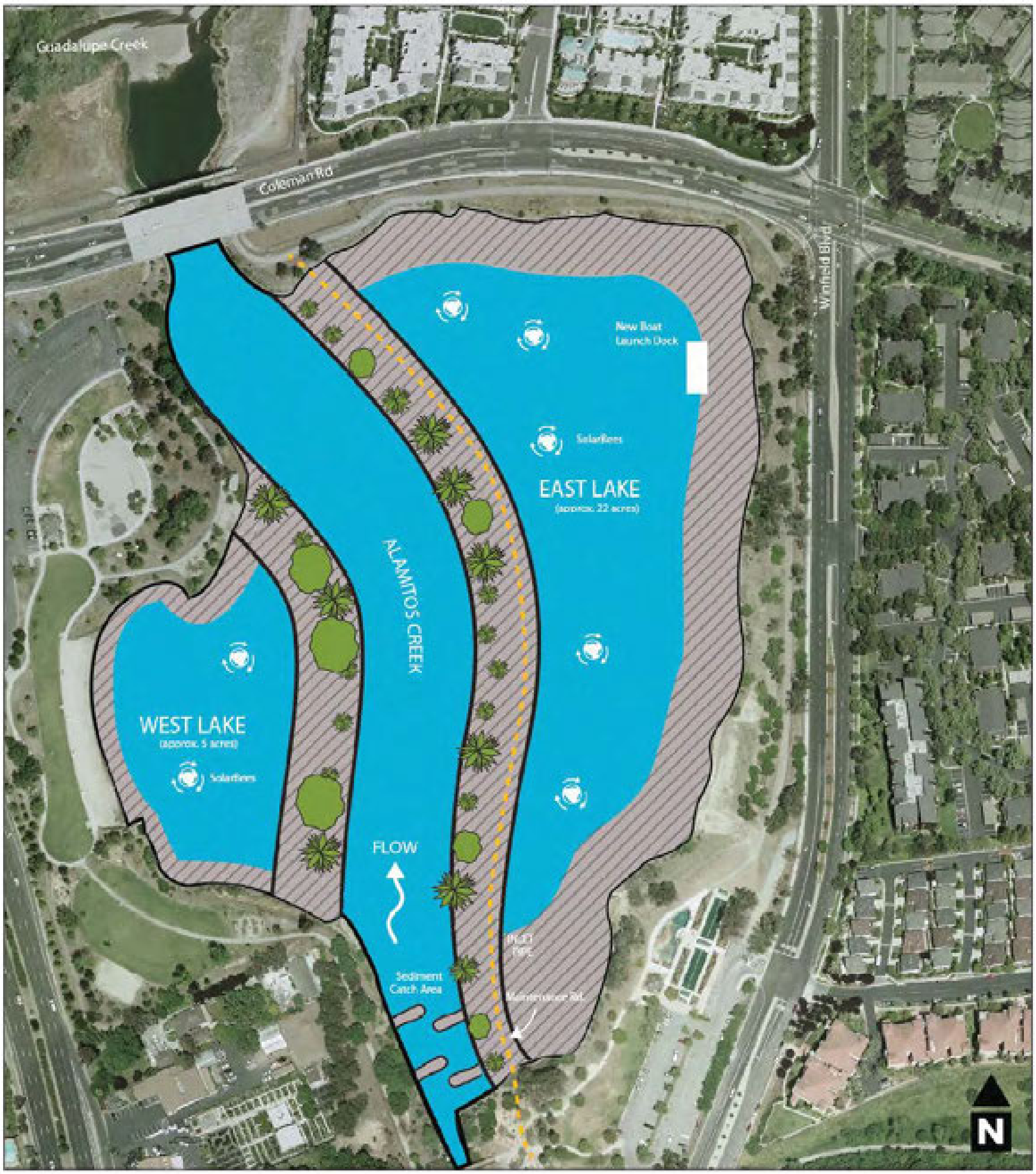
As summarized in Table 4-2, the No Project Alternative would have adverse effects on the environment as the existing water quality issues would continue, including mercury contamination, low dissolved oxygen, coliform bacteria, and algal blooms. In addition to water quality impacts, existing adverse effects to biological resources (fisheries) and recreational opportunities in the lake and at the Park would continue. Current mercury contamination would continue, which is in exceedance of RWQCB water quality standards, and numeric targets for fish tissue mercury concentrations would continue to be in exceedance of mercury thresholds. Also, existing barriers to anadromous fish migration would continue.

The No Project Alternative would avoid all construction-related short-term impacts, because Alamitos Creek would not be separated from the lake, Almaden Lake would not be recontoured and capped, the open park area and new boating facilities would not be created, the island in the lake would be unchanged, a flow-through water system would not be constructed, and the levee and trail/maintenance road would not be constructed. Thus, the vista of the lake from the Park would be maintained (Impact 3.A-3). Plantings to restore the riparian corridor along the Alamitos Creek channel would not be required. There would be no potential to cause wind-blown dust that could generate particulate matter or use of diesel-powered construction equipment emitting criteria pollutants and violate air quality standards (Impacts 3.C-1, 3.C-2, and 3.C-3); no disruption to protected wildlife species or removal/ damage of street trees and trees within parks (Impacts 3.D-1 and 3.D-6); no construction-related disruption to special-status fish (Impact 3.E-1); no potential to encounter significant archaeological resources, human remains, or tribal cultural resources (Impact 3.F-1); no wasteful, inefficient, or unnecessary consumption of energy resources during Project construction (Impact 3.G-1); no construction activity that could cause a disturbance of sediments, release water with elevated mercury levels, or use hydrocarbons and other potential pollutants (Impact 3.K-1), no ground disturbance that could change drainage patterns, flood storage or flood flows, or increase soil erosion (Impact 3.K-3); and no construction activities or pump operation to exceed noise ordinance standards (Impact 3.L-1).

Alternative 2: Creek with East and West Lakes

The intent of Alternative 2 would be to reduce the short-term, construction-related impacts of the Project while fulfilling the project objectives. Alternative 2 would include the separation of Alamitos Creek from Almaden Lake, and the re-contouring and capping of the lake bottom. However, Alternative 2 would feature open water lake areas on both sides of the restored Alamitos Creek alignment (**Figure 4-1**), instead of a single lake to the east of the creek and new parkland to the west of the creek as proposed under the Project.

Because the West Lake area would be open water and not new park land, the amount of required fill would be reduced by nearly 70,000 cubic yards (from about 897,690 cubic yards under the Project [see Table 2-2 in Chapter 2, Project Description]). In addition, the construction period under Alternative 2 would be approximately 4 months less than under the Project (26 months as compared to 30 months under the Project), and construction-related impacts would be proportionately reduced.



SOURCE: SCVWD, 2012

Almaden Lake Improvement Project . 130679
Figure 4-1
Alternative 2: Creek with East and West Lakes

Description of Alternative 2

Alamitos Creek Restoration

Under Alternative 2, Alamitos Creek would be restored in an approximately 100-foot wide by 1,600-foot long riparian corridor. The approximately 5-acre creek channel would be separated from Almaden Lake, and sized to convey a 100-year flood event. Alternative 2 would have a narrower channel than the 210 to 420-foot wide flood channel and 11-acre creek area of the Project. The geomorphic design of the creek channel would include a riffle-pool-run pattern similar to the channel immediately upstream of the Project area. The restored creek channel would be bordered by levees on its east and west banks (as compared to a levee on just the east bank under the Project), and the eastern levee would be approximately 20-feet wide with a maintenance road and public trail along the top. A sediment catchment area at the upstream end of the creek, where sediment would be allowed to deposit, would slow the stream flow and promote sediment deposition.

Similar to the Project, this alternative would install two creek access ramps intended for use only by the District's operation and maintenance staff. Native riparian vegetation would be planted along both sides of the restored creek corridor providing shading and lower water temperatures for cold water fish. Native plantings would be consistent with the District's Water Resources Protection Manual (SCVWD, 2006).

Almaden Lake Restoration

The entirety of Almaden Lake would be re-contoured under Alternative 2, and existing mercury-laden sediment would be capped with at least 2.5 feet of clay/levee fill material. The re-contoured lake depth would be approximately 26 to 28 feet, similar to the Project. Under this alternative, Almaden Lake would comprise an approximately 22-acre East Lake and an approximately 5-acre West Lake on either side of the restored Alamitos Creek channel, as compared to a single approximately 17-acre lake east of the creek under the Project.

In the East Lake, the existing island's outer banks would be re-contoured to promote greater stability of the island, and the island would be resized to an approximately 0.75-acre area, similar to the Project. A second 0.75-acre island would be created just north of the existing island. Alternative 2 would include revegetating the banks of the lakes and the islands with riparian vegetation. Public access to the islands would be prohibited. Similar to the Project, the existing boat house and boat launch would be relocated to East Lake's eastern bank (Figure 4-1).

Almaden Lake Water Supply

In both the East and West lakes, a lake water level ranging from about 188 to 190 feet above mean sea level (msl) would be maintained, similar to the Project. The lake levels would be maintained with a flow-through management system circulating at least 4,350 AFY of water through the lakes: approximately 7.5 cubic feet per second (cfs) from May through September and approximately 5.0 cfs from October through April. The pipelines would be sized to convey flows of up to 16 cfs of water (12 to 14 cfs into the East Lake, and 2 to 4 cfs into the West Lake).

Similar to the Project, imported water from the Almaden Valley Pipeline would provide water to the lakes to enhance water circulation and water quality. A pipeline would run from the Almaden Valley Pipeline approximately a half-mile (about 2,900 feet) to Almaden Lake. Just south of the lakes, a single connector pipeline would split into two inlet pipelines to supply water to the two separate lakes, compared to a single 2,900-foot inlet pipeline into one lake under the Project. Up to five SolarBees would circulate water in the East Lake, and up to two SolarBees would circulate water in the West Lake to enhance water quality, similar to seven SolarBees operating in a single lake in the Project.

As part of the flow-through management system, lake water would discharge via separate outlet pipelines from the northerly ends of the East and West lakes and converge in a single pipeline conveyance to the Los Alamitos Percolation Pond for groundwater recharge. Two separate outlet structures would be built at the north ends of the two lakes, including two pump stations and two outlet pipelines sized to convey approximately 16 cfs of water (12 to 14 cfs from the East Lake and 2 to 4 cfs from the West Lake). Under the Project, a single outlet structure, pump station, and pipeline would discharge water in a pipeline sized to convey 16 cfs of water to the Los Alamitos Percolation Pond. Adequate capacity would need to be available in the Los Alamitos Percolation Pond in order to transfer water from the lakes to the percolation pond for groundwater recharge, similar to the Project.

Alternative 2 Construction

Construction activities would be somewhat less than those anticipated by the Project due to the replacement of the new park area proposed under the Project with a lake area west of the creek under this alternative. As a result, Alternative 2 would use approximately 70,000 cubic yards less fill material and have about an approximately 4-month shorter construction period.

Similar to the Project, flow from the creek would be diverted around the construction area using a cofferdam and pumps, and the lake bed would be dewatered using portable diesel or electric pumps. A series of sheet piles would be installed along the alignments of the levees on either side of Alamitos Creek. Lake bed grading and levee construction may require additional dewatering of shallow lake sediments using sump pumps, well points, etc.

Similar to the Project, excavation activities for Alternative 2 include re-contouring the bed of Almaden Lake and Alamitos Creek, preparing the foundations of the levees, reconfiguring/ cutting the existing banks of Almaden Lake, reconfiguring the shape of the existing island and creating a new island, and trenching for the pipeline extensions to the Almaden Valley Pipeline connection and to Los Alamitos Percolation Pond. Total fill volume is estimated to be approximately 70,000 cubic yards less fill material than under the Project.

Ability to Meet Project Objectives

The Creek with East and West Lakes Alternative would meet all of the project objectives, which are to separate Alamitos Creek from Almaden Lake; reduce production of methylmercury, and mercury in target fish in Almaden Lake to meet applicable water quality objectives; remove potential lake entrainment of anadromous fish; improve temperature conditions and reduce predation for native fish; and minimize impacts to existing recreational features. Alternative 2 would separate Alamitos Creek from Almaden Lake with the construction of two levees, and create two lakes on either side of the creek. By separating the creek from the lake, recontouring and capping the lake bottom, creating a flow-through water system for the lake, and piping overflow lake water to the Los Alamitos Percolation Pond, Alternative 2 would reduce production of methylmercury, and mercury in target fish in Almaden Lake to meet applicable water quality objectives. Lake water quality would be further enhanced by the circulation of up to seven SolarBee water circulators in the lakes. By isolating the creek channel from the lake, Alternative 2 would remove potential lake entrainment of anadromous fish and reduce release of Almaden Lake's warm water downstream into the Guadalupe River. Alternative 2 would minimize impacts to existing recreational features by continuing to provide pedal boating, picnicking, walking/running, hiking, biking, volleyball, horseshoes, bocce ball, dog walking, and other recreational activities.

Alternative 2 would also meet the project purpose to restore Alamitos Creek's stream function within the footprint of Almaden Lake to improve physical habitat for steelhead and other anadromous fish, while improving water quality within the lake footprint, and minimizing impacts to recreational features within the Park. Many and varied recreational opportunities would continue to be available in the Park. However, because Alternative 2 would not include a new park area west of the creek, continued recreation use of Almaden Lake Park would be somewhat less enhanced under Alternative 2 as compared to the Project.

Environmental Impacts of Alternative 2

As summarized in Table 4-2, implementation of the Creek with East and West Lakes Alternative would reduce the duration of the short-term, construction-related impacts compared to those of the Project because the area west of Alamitos Creek would be redeveloped as a lake area (i.e., West Lake) and would not be filled and converted into a new park area, as proposed under the Project. As a result, Alternative 2 would utilize approximately 70,000 cubic yards less fill material and construction of this alternative would be about 4 months shorter than the Project (about 26 months instead of 30 months).

Because this alternative would require less fill, and would take place over a shorter construction period, the construction-related impacts of Alternative 2 would be reduced compared to the Project. The mitigation measures described for the Project would also be applicable to Alternative 2.

The vista of the lake from the Park, which is the main visual element in the fore and middle ground, would be diminished compared to existing conditions, as under the Project (Impact 3.A-3). However, because the construction period would be shorter than for the project, the site would be restored after restoration plantings are established more quickly than under the Project. As under the Project, there is no feasible mitigation to reduce or avoid construction phase effects on the visual character of the Project site. Construction-related activities including operation of construction equipment, worker trips, and hauling trips would be reduced, resulting in reduced criteria air pollutant emissions, including NOx, as compared to the Project (Impacts 3.C-1 and 3.C-2). Similarly, average construction emissions would be reduced as a result of less diesel-powered construction activity under Alternative 2 compared to the Project resulting in somewhat lower exposure of maximally exposed individual (MEI) receptors to toxic air contaminants and a related reduction in health risks (Impact 3.C-3).

Construction activities such as earthwork, fugitive dust, noise, vibrations, visual disturbance, and human activity would be somewhat lessened under this alternative due to a shorter construction period. As a result, Alternative 2 would be somewhat less disruptive to special-status birds, and nesting migratory birds and raptors, bats than the Project (Impact 3.D-1). Alternative 2 would affect the same general footprint as the Project, and would therefore have similar impacts as the Project on removal/damage of street trees and trees within parks (Impact 3.D-6). However, ground disturbance activities associated with pipeline construction would be somewhat more extensive under this alternative due to the need to create inlet and outlet pipelines for two lakes, potentially creating additional short-term disruptions of habitat.

With respect to special-status fish species and fish passage, Alternative 2 would undertake similar habitat restoration activities as the Project that would require dewatering of habitat, fish relocation, and subsequent reconstruction of the creek channel with the potential to result in significant impacts on native fish species (Impact 3.E-1). Similar to the Project, however, overall post-Project conditions should provide substantial benefit to native fish species through the restoration of the creek system to a more natural state. Nevertheless, Alternative 2 would provide lower quality creek habitat for special-status fish species than the Project. Alternative 2 would provide only one-half of the area for the restoration of Alamitos Creek (5 acres, as compared to 11acres under the Project). This alternative would convey 100-year flood flows in a narrower and more steeply sloped creek channel (100 feet wide, as compared to the 210 to 420-foot wide flood channel of the Project). The narrower confines of this alternative's creek channel would provide less opportunity for Alamitos Creek to naturally meander in the corridor, and would restrict the creek's ability to create the complex and diverse ripple, pool, run riparian habitat beneficial to anadromous fish as compared to the Project. In addition, routine sediment removal activities in the vicinity of the in-creek sediment catchment area could be detrimental to anadromous fish habitat.

As with the Project, Alternative 2 would have a similar low potential for inadvertent discovery of archaeological resources, human remains, and tribal cultural resources during ground disturbing activities as the Project (Impact 3.F-1). Alternative 2 and the Project would require similar cut volumes of soils, resulting in similar levels of ground disturbance.

With respect to consumption of energy resources, Alternative 2 would require a shorter construction period than the Project resulting in less potential for construction activities to result in wasteful or inefficient use of energy resources, as compared to the Project (Impact 3.G-1).

Similar to the Project, Alternative 2 would improve water quality in Alamitos Creek and Almaden Lake. Like the Project, construction activities under this alternative would cause disturbance of sediments, release of water with elevated mercury levels, and use of construction machinery that releases hydrocarbons and other potential water quality pollutants. Alternative 2 would have a shorter construction period, and would reduce the time period that heavy construction equipment would be operating in the Project area and the potential for accidental release of water quality pollutants into the environment (Impact 3.K-1).

With respect to stormwater flows, this alternative would have a narrower creek channel in which to temporarily convey stormwater flows than the Project. In the event of a major storm event during construction, the narrower creek channel under this alternative would have an increased potential for the creek conveyance to be of insufficient capacity to pass stormwater flows downstream, which could result in accidental release of flows into the lake work areas, creating increased potential hazards to Project workers and construction equipment (Impact 3.K-3).

The shorter construction period under Alternative 2 would result in less construction equipment / traffic that would exceed the noise limits of the City's General Plan and exceed applicable threshold criteria associated with off-site construction traffic than the Project. This alternative would build two pump stations (an East Lake pump station and a West Lake pump station) to convey water from the lakes, as compared to one pump station under the Project. However, the two pump stations would have a smaller capacity than the pump station proposed under the Project due to the reduced pumping requirements of the two lakes under Alternative 2. As a result, the noise generated by the two pump stations under Alternative 2 would be similar to the operational noise of the Project's pump station (Impact 3.L-1).

In summary, this alternative would change the distribution of creek and lake restoration areas. The Alamitos Creek restoration area would be reduced to a five-acre area (as compared to 11 acres under the Project). The narrower creek corridor (100 feet wide, as compared to 210 to 420-feet wide) under this alternative would require a deeper, less complex creek system to convey 100-year flood flows and more artificial hardscape features to control erosion, resulting in lower quality creek habitat for anadromous fish than the Project. The duration of the construction impacts under Alternative 2 would be less than those under the Project, because this alternative would require the placement of approximately 70,000 cy less fill material. An approximately 4-month shorter construction period would result in reduced construction-related impacts to air quality, biological resources, energy resources, hydrology and water quality, and noise-related impacts. However, ground disturbance associated with pipeline construction would be somewhat greater under this alternative (to provide a flow-through system for two separate lakes), potentially creating additional short-term disruptions of habitat. All of the significant construction-related impacts of the Project would remain significant under this alternative. However, the magnitude of the significance would generally be less, and all of the impacts would be reduced to a less than significant level with implementation of the same mitigation measures specified in this EIR for the Project, with the exception of construction phase aesthetic resources effects which would remain significant and unavoidable, similar to the Project.

Alternative 3: Creek with East and West Open Space

The intent of Alternative 3 would be to eliminate the operational noise impact of the pump station under the Project while fulfilling the project objectives. Alternative 3 would restore the Alamitos Creek alignment in a 5-acre corridor, and would address ongoing water quality issues in Almaden Lake by filling the lake and creating new park/open space areas to the east and west of the creek (**Figure 4-2**), instead of a single lake to the east of the creek and new parkland to the west of the creek as proposed under the Project.

The entire lake area would be converted to open space park land, with the exception of the 5-acre Alamitos Creek channel. In addition, the new park area to the west of the creek would more than double in size from approximately 2 acres under the Project to approximately 5 acres under Alternative 3. Given the increase in open space proposed under this alternative, Alternative 3 would require approximately 100,000 cy more fill material than the Project. Even though the Alternative would not require construction of the transfer pipeline, placement of a considerable amount of additional clean fill to fill Almaden Lake would require a longer construction period than the Project, and construction-related impacts would be proportionately increased.

Description of Alternative 3

Alamitos Creek Restoration

Similar to Alternative 2, under Alternative 3, Alamitos Creek would be restored in an approximately 100-foot wide by 1,600-foot long riparian corridor. The approximately 5-acre creek channel would be separated from Almaden Lake, and sized to convey a 100-year flood event. Like Alternative 2, Alternative 3 would have a narrower channel than the 210 to 420-foot wide flood channel and 11-acre creek area of the Project. The geomorphic design of the creek channel would include a riffle-pool-run pattern similar to the channel immediately upstream of the Project area. The restored creek channel would be bordered by banks on its east and west banks (as compared to a levee on just the east bank under the Project), and the eastern bank would be approximately 20-feet wide with a maintenance road and public trail along the top. A sediment catchment area at the upstream end of the creek, where sediment would be allowed to deposit, would slow the stream flow and promote sediment deposition.

Similar to the Project, this alternative would install two creek access ramps intended for use only by the District's operation and maintenance staff. Native riparian vegetation would be planted along both sides of the restored creek corridor providing shading and lower water temperatures for cold water fish. Native plantings would be consistent with the District's Water Resources Protection Manual (SCVWD, 2006).

New Park/Open Space

Alternative 3 would create a 5-acre park/open space area west of Alamitos Creek, and a 22-acre park/open space east of the creek. The new park areas would be created by filling the lake with clean fill material to blend with the existing ground elevations of the island and surrounding Park areas. The existing vegetation on the island would remain, and the new

SOURCE: SCVWD, 2012

Almaden Lake Improvement Project . 130679

Figure 4-2
Alternative 3: Creek with East and West Open Spaces

open space areas would be planted to match the surrounding Park landscape. The lake feature, and water-based recreation activities such as pedal boating would be eliminated from the Park (SCVWD, 2013a).

The restored creek, creek banks, maintenance road, and open spaces would remain under the jurisdiction of the District. The District would consider dedicating the new open spaces to the City for incorporation with the surrounding Park area currently owned and managed by the City. In such case, the City would be responsible for any recreational improvements and uses associated with the new open spaces.

Alternative 3 Construction

Construction activities would be greater than those anticipated by the Project due to the increased amount of clean fill required to fill Almaden Lake and create approximately 27 aces of new park/open space under this alternative. Converting the entirety of Almaden Lake from open water to park/open space (with the exception of the 5-acre restored creek corridor) would require importing and depositing approximately 100,000 cy of additional fill material than the Project, and as a result the duration and magnitude of construction activity and associated construction-related environmental impacts under this option would be greater.

Similar to the Project, flow from the creek would be diverted around the construction area using a cofferdam and pumps, and the lake bed would be dewatered using portable diesel or electric pumps. A series of sheet piles would be installed along the alignments of the banks on either side of Alamitos Creek. Bank construction may require additional dewatering of shallow lake sediments using sump pumps, well points, etc.

Upon dewatering of Almaden Lake, the areas to the west and east of the restored creek would be filled with clean fill material to the existing Park and island ground elevation. The existing vegetation on the island would remain and the new open space areas would be planted similar to the surrounding Park landscape.

Ability to Meet Project Objectives

Alternative 3 would partially meet the project objectives, which are to separate Alamitos Creek from Almaden Lake; remove potential lake entrainment of anadromous fish; improve temperature conditions and reduce predation for native fish; and minimize impacts to existing recreational features. Alternative 3 would accomplish these project objectives by separating the creek from the lake, and filling in the lake and replacing it with open space.

By removing the lake, Alternative 3 would also eliminate the fish and water in the lake and would not meet the project objectives to reduce production of methylmercury, and mercury in target fish in Almaden Lake to meet applicable water quality objectives. Because Alternative 3 would eliminate the open water area of Almaden Lake, including the area available for pedal boating, this option would not minimize impacts to existing recreational features. By creating additional new park/open space, this alternative would support continued recreational use of Almaden Lake Park, however, with the absence of the lake, the recreational experience at Almaden Lake Park would be modified.

Alternative 3 would partially meet the project purpose to restore Alamitos Creek's stream function within the footprint of Almaden Lake to improve physical habitat for steelhead and other anadromous fish, while improving water quality within the lake footprint. While water quality within the creek would be improved, water quality would not be improved within the lake (as noted above), Because of the elimination of Almaden Lake, Alternative 3 would not minimize impacts to recreational features within the Park, such as pedal boating. Other recreational opportunities would continue to be available in the Park; however, because this alternative would eliminate Almaden Lake, continued recreation use of Almaden Lake Park would be adversely affected under Alternative 3 as compared to the Project.

Environmental Impacts of Alternative 3

Alternative 3 would eliminate the less than significant with mitigation operational noise effect of the Project by removing the need for a pump station to pump lake water to Los Alamitos Percolation Pond. Instead, Almaden Lake would be filled, creating two new park/open space areas on either side of the restored Alamitos Creek channel. In creating the new park/open space, this alternative would fill approximately 27 acres of Almaden Lake, which is considered potentially jurisdictional waters of the U.S. resulting in a substantial reduction in potential wetlands at the site.

This alternative would require the placement of approximately 100,000 cy additional fill material than the Project, and as a result Alternative 3 would increase the construction-related impacts related to fill transport and deposition. The mitigation measures described for the project would also be applicable to Alternative 3.

The vista of the lake from the Park, which is the main visual element in the fore and middle ground, would be diminished compared to existing conditions, as under the Project (Impact 3-A.3). However, because the construction period would be longer than under the project, it would take longer for site to be restored after restoration plantings than under the Project. As under the Project, there is no feasible mitigation to reduce or avoid construction phase effects on the visual character of the Project site. Construction-related activities including operation of construction equipment, worker trips, and hauling trips would be increased, resulting in increased criteria air pollutant emissions, including NOx, as compared to the Project (Impacts 3.C-1 and 3.C-2). Similarly, average construction emissions would be increased as a result of more diesel-powered construction activity under Alternative 3 compared to the Project resulting in higher exposure of maximally exposed individual receptors to toxic air contaminants and a related increase in health risks (Impact 3.C-3).The length of the construction period would also increase somewhat, resulting in sensitive noise receptors and sensitive biological resources being exposed to construction activity for a longer duration.

Construction activities such as earthwork, fugitive dust, noise, vibrations, visual disturbance, and human activity would be increased under this alternative due to a somewhat longer construction period. As a result, Alternative 3 would be more disruptive to special-status birds, nesting migratory birds and raptors, and bats than the Project. Converting Almaden Lake to open space would also remove lacustrine habitat for special-status birds, such as the double-crested cormorant, herons, and egrets. In addition, the lake provides habitat for the California red-legged and foothill yellow-legged frog, and western pond turtle. Removal of lake habitat would adversely affect these species, and would reduce the occurrence of riparian communities (Impacts 3.D-1, 3.D-2, and 3.D-3). However, there would be no ground disturbance activities associated with pipeline construction under this alternative, eliminating short-term disruptions of habitat and removal/damage of street trees and trees within the park and trails along the Project's pipeline corridor (Impact 3.D-6).

Regarding special-status fish species and fish passage, this alternative would undertake similar habitat restoration activities as the Project that would require dewatering of habitat, fish relocation, and subsequent reconstruction of the creek channel with the potential to result in significant impacts on native fish species (Impacts 3.E-1). Similar to the Project, however, overall post-Project conditions should provide substantial benefit to native fish species through the restoration of the creek system to a more natural state. Nevertheless, this alternative would provide lower quality creek habitat for special-status fish species than the Project. Alternative 3 would provide only one-half of the area for the restoration of Alamitos Creek (5 acres, as compared to 11 acres under the Project). This alternative would convey 100-year flood flows in a narrower and more steeply sloped creek channel (100 feet wide, as compared to the 210 to 420-foot wide flood channel of the Project). The narrower confines of the creek channel would provide less opportunity for Alamitos Creek to naturally meander in the corridor, and would restrict the creek's ability to create the complex and diverse ripple, pool, run riparian habitat beneficial to anadromous fish as compared to the Project. Also, routine sediment removal activities in the vicinity of the in-creek sediment catchment area could be detrimental to anadromous fish habitat.

Alternative 3 would have less potential for inadvertent discovery of archaeological resources, human remains, and tribal cultural resources during ground disturbing activities as the Project (Impact 3.F-1), because the lake would be filled and would not involve the ground disturbance associated with the installation of a clay cap. In addition, Alternative 3 would not require ground disturbance related to the construction of the transfer pipelines proposed under the Project.

Regarding consumption of energy resources, Alternative 3 would require a require a somewhat longer construction period than the Project resulting in greater potential for construction activities to result in wasteful or inefficient use of energy resources, as compared to the Project (Impact 3.G-1).

Similar to the Project, Alternative 3 would improve water quality in Alamitos Creek. Alternative 3 would remove Almaden Lake, so lake water quality would not be improved. Like the Project, construction activities under this alternative would cause disturbance of sediments, release of water with elevated mercury levels, and use of construction machinery that releases hydrocarbons and other potential water quality pollutants during dewatering. Alternative 3 construction would require approximately 100,000 cy more fill than the Project, resulting in increased use of construction equipment emitting hydrocarbons and other potential pollutants. Because Alternative 3 would have a somewhat longer construction period, heavy construction equipment would be operating in the Project area for a longer period, and the potential for accidental release of water quality pollutants into the environment would increase (Impact 3.K-1).

Regarding stormwater flows, Alternative 3 would have a narrower creek channel in which to temporarily convey stormwater flows than the Project. In the event of a major storm event during construction, the narrower creek channel under this alternative would have an increased potential for the creek conveyance to be of insufficient capacity to pass stormwater flows downstream, which could result in accidental release of flows into the adjacent open space work areas, creating increased potential hazards to Project workers and construction equipment (Impact 3.K-3).

With respect to noise impacts, Alternative 3 would convert Almaden Lake to open space, and would not require a pump station to convey lake water. Operation of this alternative would not involve the use of pumps resulting in the elimination of the operational noise impact that would occur under the Project (Impact 3.L-1). However, it is noted that should new park areas be activated for uses such as play fields by the City, operational noise activities could be increased over existing conditions at time when playfields are in use.

Similar construction equipment would be used for this alternative as for the Project. Alternative 3 would require more fill material than the Project, resulting in a somewhat longer construction period. With a longer construction period, there would be an increase in construction equipment / traffic that could exceed the noise limits of the City's General Plan and exceed applicable threshold criteria associated with off-site construction traffic as compared to the Project resulting in an increased construction-related noise impact on sensitive receptors (Impact 3.L-1).

Alternative 3 would remove the lake from Almaden Lake Park, a central visual element for visitors to the Park. Views of the lake are available from Almaden Expressway, a county-designated scenic corridor. However, as described in Section 3.A, Aesthetics, views of the lake from Almaden Expressway would be partially screened by intervening trees and vegetation, and would be brief in duration due to traffic speeds on the expressway. Nonetheless, views of Almaden Lake Park would be dramatically altered under Alternative 3 with the replacement of the lake with new park/open space, as compared to the Project.

Under Alternative 3, water-based recreation opportunities, such as pedal boating, would no longer be available at the Park due to the replacement of the lake with new park/open space. Discontinuing pedal boating at Almaden Lake Park could result in the loss of a recreational opportunity that would 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. There are limited opportunities for pedal boating in the San José area. Lake Cunningham Park in San José has recently closed the lake to water activities, including pedal boating, due to water quality concerns. Vasona Park in Los Gatos, California, offers pedal boating on Vasona Lake. Removal of Almaden Lake and loss of opportunities for pedal boating could result in substantial physical deterioration of pedal boating facilities in the region (such as at Vasona Lake) due to reduction of supply, as compared to the Project.

Alternative 3 would not meet two of the project objectives. This option also would increase certain impacts and introduce new concerns, such as the filling of potentially jurisdictional waters of the U.S., the creation of lower quality creek habitat than the Project, and the loss of a lake feature and water-based recreation at Almaden Lake Park.

In summary, Alternative 3 would restore Alamitos Creek and replace the lake on either side of the creek channel with new park/open space. This alternative would remove the lake feature from Almaden Lake Park. The intent of Alternative 3 would be to eliminate the less than significant with mitigation operational noise impact associated with the pump station (to pump lake water to Los Alamitos Percolation Pond) proposed under the Project. In this alternative, the Alamitos Creek restoration area would be reduced to a five-acre area (as compared to 11 acres under the Project). The narrower creek corridor (100 feet wide, as compared to 210 to 420-feet wide) under this alternative would require a deeper, less complex creek system to convey 100-year flood flows and more artificial hardscape features to control erosion, resulting in lower quality creek habitat for anadromous fish than the Project.

Filling Almaden Lake under Alternative 3 would require placement of approximately 100,000 cy more fill material than would be required under the Project, resulting in a somewhat longer construction period. The extended construction period under this alternative would result in increased construction-related impacts to aesthetic resources, air quality, biological resources, energy resources, hydrology and water quality, and noise-related impacts. However, there would be no ground disturbance associated with pipeline construction under this alternative, eliminating the potential for habitat disturbance or accidental discovery of archeological resources in these pipeline corridors. All of the significant construction-related impacts of the Project would remain significant under this alternative. However, the magnitude of the significance would be somewhat increased, but the impacts would likely be reduced to a less than significant level with implementation of the same mitigation measures specified in this EIR for the Project, with the exception of aesthetic resources which would remain significant and unavoidable. The removal of the lake and the discontinuation of pedal boating at Almaden Lake Park would introduce adverse aesthetics and recreation impacts not associated with the Project.

4.C Comparison of Alternatives

The State CEQA Guidelines Section 15126.6(e) requires the identification of an environmentally superior alternative to the proposed project. If it is determined that the “no project” alternative would be the environmentally superior alternative, then the EIR shall also identify an environmentally superior alternative among the other project alternatives (Section 15126.6[e][2]). To determine the environmentally superior alternative, the impacts of all the alternatives were compared to determine which alternative would have the least adverse effects.

Alternative 1 would eliminate the short-term construction effects relative to the Project. However, under Alternative 1 the existing water quality issues would continue, including mercury contamination (which is in exceedance of RWQCB water quality standards), low dissolved oxygen, coliform bacteria, and algal blooms. Numeric targets for fish tissue mercury concentrations would continue to be in exceedance of mercury thresholds. Also, existing non-physical barriers to anadromous fish migration would continue. Alternative 1 would not meet any of the project objectives.

Alternative 2 would reduce the short-term construction effects relative to the Project by utilizing approximately 70,000 cubic yards less fill material, resulting in an approximately 4-month shorter construction period than the Project. Construction-related activities including operation of construction equipment, worker trips, and hauling trips would be reduced, resulting in reduced criteria air pollutant emissions and exposure of sensitive receptors to toxic air contaminants, compared to the Project. Construction activities such as earthwork, fugitive dust, noise, vibrations, visual disturbance, and human activity would be somewhat lessened under this alternative due to a shorter construction period, which would be somewhat less disruptive to special-status birds, nesting migratory birds and raptors, and bats than the Project. The shorter construction period would also result in less potential for construction activities to result in wasteful or inefficient use of energy resources, reduced duration of heavy construction equipment operating in the Project area with the potential for accidental release of water quality pollutants, and reduced construction noise.

Alternative 2 would require two pump stations to convey water to Los Alamitos Percolation Pond; however, the two pump stations would have a smaller capacity than the pump station proposed under the Project due to the reduced pumping requirements of the two lakes under Alternative 2. As a result, the noise generated by the two pump stations under Alternative 2 would be similar to the operational noise of the Project's pump station. On balance, Alternative 2 would reduce the construction-related impacts of the Project, and would meet all project objectives.

Alternative 3 would eliminate the operational noise impact of the pump station under the Project, but in converting the lake to park land, would require approximately 100,000 cubic yards more fill material than the Project, which would require a longer construction period than the Project, and construction-related impacts would be proportionately increased. The extended construction period under this alternative would result in increased construction-related impacts to aesthetic resources, air quality, biological resources, energy resources, hydrology and water quality, and noise-related impacts. Alternative 3 would increase the construction-related impacts of the Project, and would only partially meet project objectives. In addition, Alternative 3 would require a lengthier planning period than the Project, in order to meet the regulatory and permitting requirements associated with filling Almaden Lake.

As described above, the No Project Alternative (Alternative 1) and Creek with East and West Lakes (Alternative 2) would both reduce construction effects relative to the Project because: (1) there would be no facilities constructed under the No Project Alternative, and (2) Alternative 2 construction would be somewhat reduced. The significant impacts of the

Project would remain significant under Alternative 2. Construction phase aesthetic resources, air emissions, special-status species impacts, energy consumption, water quality impacts, and noise impacts would be somewhat less than under the Project, and would be reduced to a less than significant level with the implementation of mitigation measures specified in this EIR for the Project. All other significant construction impacts and the operational noise impact of the Project would remain significant under Alternative 2, and would be reduced to a less than significant level with implementation of mitigation measures specified in the EIR for the Project, with the exception of aesthetic resources impacts which would remain significant and unavoidable, similar to the Project.

Based on the evaluation above, Alternative 2 is the environmentally superior alternative among the Project alternatives (other than the No Project Alternative). Alternative 2 would decrease the short-term, construction-related impacts as compared to the Project, resulting in reduced construction-related impacts to aesthetic resources, air quality, biological resources, energy resources, hydrology and water quality, and noise-related impacts. While Alternative 3 would eliminate the operational noise impact of the pump station under the Project, this alternative increased the short-term, construction-related impacts as compared to the Project, and introduced new regulatory issues associated with filling Almaden Lake. As a result, Alternative 2 would have reduced construction-related impacts as compared to the Project and Alternative 3, and similar operational noise impacts as the Project, and on balance would be the environmentally superior alternative.

4.D Alternatives Considered but Rejected from Further Analysis

The planning process for the Almaden Lake Improvement Project began in 2011. Over the course of the planning effort, the District considered numerous options for the Project in the context of the project objectives, technical feasibility, agency comment, public input, and constraints on implementation. Below, 11 alternatives are considered but rejected from further consideration. The first 5 alternatives provide water source options for water management in Almaden Lake in lieu of Almaden Valley Pipeline, including Alamitos Creek (Option 1), Recycled Water from the San José Water Company's Recycled Water Pipeline (Option 2), groundwater (Option 3), Los Capitancillos Recharge Ponds (Option 4), and Alamitos Canal (Option 5). The next 2 alternatives examine variations on lake and open space themes, including Creek with West Lake and East Open Space (Option 6) and Creek with West Wetland and East Lake (Option 7). In response to agency comments, the District developed the Expanded Creek Restoration alternative (Option 8). The public developed two alternatives, including East Creek with Large West Lake (Option 9) and Creek in Underground Culvert (Option 10). Finally, the District considered a technology-only option to address the lake's water quality issues: Additional SolarBees (Option 11). The reasons for considering but rejecting these alternatives from further analysis are described below.

TABLE 4-3
ALTERNATIVES CONSIDERED BUT REJECTED FROM FURTHER CONSIDERATION

Potential Alternative Identified	Description	Ability to Meet Project Objectives and Constraints on Implementation
Option 1. Alamitos Creek Water Source	• Restore Alamitos Creek alignment along western edge of lake • Separate lake from creek, and re-contour and cap lake bed • Alamitos Creek water source to fill and maintain Almaden Lake • Place screened diversion structure in creek, which requires regular sediment removal activities around intake structure • Lake flow-through system discharges back to Alamitos Creek • New point of rediversion established for the District's existing upstream water rights	• Partially Meets Project Objectives: - Separate creek from lake - Reduce production of methylmercury, and mercury in target fish in Almaden Lake to meet applicable water quality objectives - Remove potential lake entrainment of anadromous fish - Minimize impacts to existing recreational features • Reasons for Rejection: - Does not meet project objectives - Does not reduce significant impacts - Use of creek water reintroduces mercury to the lake - Regular maintenance of in-creek water diversion structure could be detrimental to anadromous fish habitat - Would require approval of a water right change petition by the State Water Resources Control Board to establish new rediversion point of creek into lake
Option 2. Recycled Water Source	• Restore Alamitos Creek alignment along western edge of lake • Separate lake from creek, and re-contour and cap lake bed • Recycled water source to fill and maintain Almaden Lake • Closed lake system	• Partially Meets Project Objectives: - Separate creek from lake - Remove potential lake entrainment of anadromous fish - Improve temperature conditions and reduce predation for native fish; - Minimize impacts to existing recreational features • Reasons for Rejection: - Does not meet Project objectives - Poor water quality in lake (source water and closed lake system) - Recycled water source not available until approximately 2021
Option 3. Groundwater Source	• Restore Alamitos Creek alignment along western edge of lake • Separate lake from creek, and re-contour and cap lake bed • Pumped groundwater source to fill and maintain Almaden Lake • Lake flow-through system discharges to Los Alamitos Percolation Pond via new pipeline to Los Alamitos Percolation Pond	• Meets All Project Objectives: - Separate creek from lake - Reduce production of methylmercury, and mercury in target fish in Almaden Lake to meet applicable water quality objectives - Remove potential lake entrainment of anadromous fish - improve temperature conditions and reduce predation for native fish; - Minimize impacts to existing recreational features • Reasons for Rejection: - Does not reduce significant impacts - Potential impacts to groundwater levels and other well users - Displacement of local surface water at Los Alamitos Percolation Pond groundwater recharge basin - High annual groundwater pumping expenses - Groundwater pump would introduce new noise source - Use of groundwater would temporarily halt if the District calls on the community to conserve water

TABLE 4-3 (Continued)
ALTERNATIVES CONSIDERED BUT REJECTED FROM FURTHER CONSIDERATION

Potential Alternative Identified	Description	Ability to Meet Project Objectives and Constraints on Implementation
Option 4. Los Capitancillos Recharge Water Source	• Restore Alamitos Creek alignment along western edge of lake • Separate lake from creek, and re-contour and cap lake bed • Pump Los Capitancillos Recharge Pond water supplemented by Almaden Valley Pipeline imported water to fill and maintain Almaden Lake • Lake flow-through system discharges to Los Alamitos Percolation Pond via new pipeline to Los Alamitos Percolation Pond	• Meets All Project Objectives: - Separate creek from lake - Reduce production of methylmercury, and mercury in target fish in Almaden Lake to meet applicable water quality objectives - Remove potential lake entrainment of anadromous fish - Improve temperature conditions and reduce predation for native fish; - Minimize impacts to existing recreational features • Reasons for Rejection: - Does not reduce significant impacts - Requires pumping water from Los Capitancillos to the lake - Use of Guadalupe Creek water reintroduces mercury to the lake - Requires improvements to ensure adequate capacity at Los Capitancillos Ponds, and improving pipelines between ponds in the Los Capitancillos system
Option 5. Alamitos Canal Water Source	• Restore Alamitos Creek alignment along western edge of lake • Separate lake from creek, and re-contour and cap lake bed • Convey water from the east-adjacent Coyote Creek Watershed to Almaden Lake via the Alamitos Canal • Lake flow-through system discharges to Los Alamitos Percolation Pond via new pipeline to Los Alamitos Percolation Pond	• Meets All Project Objectives: - Separate creek from lake - Reduce production of methylmercury, and mercury in target fish in Almaden Lake to meet applicable water quality objectives - Remove potential lake entrainment of anadromous fish - Improve temperature conditions and reduce predation for native fish; - Minimize impacts to existing recreational features • Reasons for Rejection: - Does not reduce significant impacts - Feasibility of rehabilitating and operating the Alamitos Canal - Alamitos Canal could convey higher-than-planned flows into Almaden Lake, and sediment-laden runoff water into the lake - Would require approval of a water right change petition by the State Water Resources Control Board to establish new point of rediversion from Coyote Creek Watershed to Almaden Lake
Option 6. Creek with West Lake and East Open Space	• Restore Alamitos Creek alignment, separating the creek from the lake • Single 5-acre West Lake with re-contoured and capped lake bed • New 22-acre park/open space created by filling east lake area • Alamitos Creek water source to fill and maintain West Lake • Place screened inlet and outlet pipes and a sediment catchment area in creek, requiring regular sediment removal activities • Requires use of Alamitos flashboard dam	• Partially Meets Project Objectives: - Separate creek from lake - Reduce production of methylmercury, and mercury in target fish in Almaden Lake to meet applicable water quality objectives - Remove potential lake entrainment of anadromous fish • Reasons for Rejection: - Does not reduce significant impacts - Large volume of fill required - Use of creek water reintroduces mercury to the lake - Regular maintenance of in-creek inlet and outlet pipes and sediment catchment area could be detrimental to anadromous fish habitat

TABLE 4-3 (Continued)
ALTERNATIVES CONSIDERED BUT REJECTED FROM FURTHER CONSIDERATION

Potential Alternative Identified	Description	Ability to Meet Project Objectives and Constraints on Implementation
Option 6 (cont.)	• New point of rediversion established for the District's existing upstream water rights • Relocate pedal boat facility to western bank of West Lake	- Narrower and less complex and diverse creek habitat restoration than Project - Would require approval of a water right change petition by the State Water Resources Control Board to establish new rediversion point of creek into lake - Lake size reduced for boating - Public opposition to reduced presence of lake feature at the Park
Option 7. Creek with West Wetland and East Lake	• Restore Alamitos Creek alignment, separating the creek from the lake • New 5-acre wetland area west of creek • 22-acre East Lake with re-contoured and capped lake bed • Alamitos Creek water source to fill and maintain East Lake and replenish wetland • Place screened inlet and outlet pipes and a sediment catchment area in creek, requiring regular sediment removal activities • Requires use of Alamitos flashboard dam • New point of rediversion established for the District's existing upstream water rights • Relocate pedal boat facility to eastern bank of East Lake	• Partially Meets Project Objectives: - Separate creek from lake - Reduce production of methylmercury, and mercury in target fish in Almaden Lake to meet applicable water quality objectives - Remove potential lake entrainment of anadromous fish - Minimize impacts to existing recreational features • Reasons for Rejection: - Does not reduce significant impacts - Use of creek water reintroduces mercury to the lake - Regular maintenance of in-creek inlet and outlet pipes and sediment catchment area could be detrimental to anadromous fish habitat - Narrower and less complex and diverse creek habitat restoration than Project - Would require approval of a water right change petition by the State Water Resources Control Board to establish new rediversion point of creek into lake - Public Concerns regarding potential odors and mosquito nuisance associated with wetland
Option 8. Expanded Creek Restoration	• Incorporate all elements of the Project • Expand restoration to 1,700-foot segment of Alamitos Creek downstream to the Alamitos Diversion Dam • Replace Alamitos Diversion Dam with an alternative water diversion system (pumping plant and fish screen)	• Meets All Project Objectives - Separate creek from lake - Reduce production of methylmercury, and mercury in target fish in Almaden Lake to meet applicable water quality objectives - Remove potential lake entrainment of anadromous fish - Improve temperature conditions and reduce predation for native fish; - Minimize impacts to existing recreational features • Reasons for Rejection - Does not reduce any of the significant environmental impacts of the Project - Beyond the scope and budget provided by the District's Board - Downstream loss of potentially jurisdictional waters of the U.S. - Uncertainty about feasibility of alternate water diversion system

TABLE 4-3 (Continued)
ALTERNATIVES CONSIDERED BUT REJECTED FROM FURTHER CONSIDERATION

Potential Alternative Identified	Description	Ability to Meet Project Objectives and Constraints on Implementation
Option 9. East Creek with Large West Lake	• Restored Alamitos Creek alignment roughly following eastern edge of lake • Separate creek from lake with a berm on west side of creek featuring the same cross-section as the levee under the Project • Single lake to the west at existing beach • Option proposed by public	• Partially Meets Project Objectives: - Separate creek from lake - Remove potential lake entrainment of anadromous fish - Improve temperature conditions and reduce predation for native fish; - Minimize impacts to existing recreational features • Reasons for Rejection: - Technically infeasible. Constrained by physical conditions, primarily existing site elevation changes – the restored creek would be too flat to properly convey flows
Option 10. Creek in Underground Culvert	• Install culvert beneath the Almaden Lake to separate and convey Alamitos Creek past the lake • Remove existing mercury from the lake bed • Culvert pipe size to carry 100-year storm flow would be 30 to 40 feet in diameter • Option proposed by public	• Partially Meets Project Objectives: - Separate creek from lake - Improve temperature conditions and reduce predation for native fish; - Minimize impacts to existing recreational features • Reasons for Rejection: - Would not meet most project objectives - Culverting creek would provide poor aquatic habitat, and barrier to anadromous fish passage - Technically infeasible due to size of culvert required
Option 11. Additional SolarBees	• Install additional SolarBee water circulators to increase oxygenation of lake	• Does Not Meet Most Project Objectives: - Minimize impacts to existing recreational features • Reasons for Rejection: - Would not meet most project objectives

4.D.1 Option 1. Alamitos Creek Water Source

Option 1 would restore the Alamitos Creek alignment along the western edge of the lake. Similar to the Project, this option would separate the lake from creek, and re-contour and cap the lake bed to address the lake's mercury-related water quality issues. Option 1 would create a lake area east of the creek, and a new park area west of the creek, similar to the Project. Under Option 1, Alamitos Creek[3] would supply water to fill and maintain Almaden Lake. This would involve installing a screened diversion structure in the eastern bank of the creek to divert flows into the lake. Regular sediment removal activities around the intake structure would be required. The diversion structure would be gravity fed, and would connect to a buried pipe that would extend through the levee to the southwestern side of the lake. A concrete outlet structure or rock riprap would be constructed at the pipe outlet to protect the lake bank from erosion.

[3] A new water right would need to be obtained to divert creek water into the lake.

Option 1 would discharge lake water back into Alamitos Creek to circulate water through the lake to maintain water quality. Lake water would be pumped out of the lake through a pipe installed in the levee and into the creek. A pump station would be constructed on the lake side of the new levee, and would contain a fish screen to prevent non-native fish from entering Alamitos Creek.

Option 1 would partially meet project objectives to separate Alamitos Creek from Almaden Lake; reduce production of methylmercury, and mercury in target fish in Almaden Lake to meet applicable water quality objectives by capping the lake bottom and circulating creek water in the lake (although creek water would reintroduce some mercury into the lake); remove potential lake entrainment of anadromous fish by separating the creek and lake; and minimize impacts to existing recreational features. Because lake water would be discharged back into Alamitos Creek, Option 1 would not meet the project objective to improve temperature conditions and reduce predation for native fish.

A new water right would need to be obtained to divert creek water into the lake, which would require the approval of a water right change petition by the State Water Resources Control Board, and could take between two to five years to approve if the water right amendment is contested (SCVWD, 2018).

Option 1 would introduce new issues associated with the use of water from Alamitos Creek. Mercury-laden sediment in the creek originating from the historic mines would be reintroduced to Almaden Lake, potentially compromising lake water quality. In addition, this option would require regular maintenance of the in-creek water diversion structure to keep the diversion clear of blockage and debris. Alamitos Creek is known to carry large amounts of gravels, which could require frequent (potentially annual) maintenance of the diversion structure. Frequent disturbance of the creek channel could be detrimental to anadromous fish habitat in this portion of the creek, and would require obtaining appropriate permits from regulatory agencies. Relying on a gravity-fed water conveyance between the lake and the creek, Option 1 would eliminate the less than significant with mitigation operational noise impact associated with the Project's operation of a pump station to pump water from the lake., However, since Option 1 does not reduce most significant effects of the Project, and introduces new issues with respect to reintroducing mercury into the lake and requiring increased routine in-creek maintenance activities, this option was considered but rejected from further analysis.

4.D.2 Option 2. Recycled Water Source

The San José Water Company Recycled Water Master Plan proposes a new recycled water distribution pipeline, which would provide 4,060 gallons per minute (gpm) of tertiary-treated water to the Bolder Ridge Golf Course located on Winfield Boulevard. Option 2 would use this recycled water as the rehabilitated lake's water source. Similar to the Project, Option 2 would separate the lake from creek, and re-contour and cap the lake bed to address the lake's mercury-related water quality issues. This option would create a lake area east of the creek, and a new park area west of the creek, similar to the Project. However, Option 2 would connect with the San José Water Company's Recycled Water Pipeline in Winfield Boulevard approximately 200 feet from Almaden Lake. Recycled water would be discharged into the lake along its eastern shore, and would support limited recirculation of the lake's water supply. A flow-through system would not be feasible for recycled water. Santa Clara Valley Water District Policy prohibits the use of recycled water for groundwater recharge, and release of recycled water to a creek is not supported by State policy. Instead, Option 2 would maintain the lake as a closed system (SCVWD, 2018).

Recycled water from the lake would be used in the Park's toilets, urinals, and for landscape irrigation. During normal operations, water would be supplied to the lake when the lake's water level falls below its capacity. The amount of water required under normal operations would be dependent on the amount of water withdrawn for the Park's toilets, urinals, and landscape irrigation. Water for this purpose would be withdrawn from the lake via an intake structure, which would be screened to prevent entry of fish and debris. Water would be pumped from the lake for nonpotable uses via a pump station. Signs would be installed throughout the Park noting the use of recycled water, and warning Park users that the water is non-potable. Under this option, water contact would not be permitted (with the exception of pedal boating). After use, this water would be discharged to the municipal sewer system.

Option 2 would partially meet the project objectives. This option would meet the project objectives to separate Alamitos Creek from Almaden Lake; remove potential lake entrainment of anadromous fish; improve temperature conditions and reduce predation for native fish;; and minimize impacts to existing recreational features. Option 2 would only partially meet the project objective of reducing production of methylmercury, and mercury in target fish in Almaden Lake to meet applicable water quality objectives. Although the lake would be drained, re-contoured, and capped to contain mercury contamination, the source water would introduce new water quality issues. Recycled water has high concentrations of nutrients, and because of its poor water quality, there would be limited opportunities to circulate water into and out of the lake. Recycled water could not be released into the creek, and could not be used for groundwater recharge at the Los Alamitos Percolation Pond. With the addition of nutrient-laden recycled water to the lake, the ongoing release of fecal matter into the lake from waterbirds, and the need to maintain the lake as a largely closed system, it would be a challenge to meet applicable water quality objectives (SCVWD, 2018).

In addition, construction of the recycled water pipeline along Winfield Boulevard is projected to be completed in 2021 (SCVWD, 2018). As such, recycled water would not be available as a water source until the San José Water Company's Recycled Water Pipeline in Winfield Boulevard is complete. Under this option, the availability of recycled water could delay planning and construction of the Almaden Lake Improvement Project.

Option 2 was considered but rejected from further analysis. This option would rely upon recycled water as source water for the lake. The recycled water would not be available until 2021, which could delay planning and construction of the Almaden Lake Improvement Project. In addition, Option 2 would introduce new water quality issues with the use of recycled water, counter to the project objective to reduce production of methylmercury, and mercury in target fish in Almaden Lake to meet applicable water quality objectives. Recycled water has high concentrations of nutrients. Because of recycled water's poor water quality, the lake system would need to operate as a largely closed system with limited opportunities to circulate water into and out of the lake. Under this option, it would be a challenge for the Santa Clara Valley Water District to meet applicable water quality objectives in the lake with the combination of nutrient-laden recycled water and limited opportunities for lake water circulation.

4.D.3 Option 3. Groundwater Source

Option 3 would pump 4,350 AFY of groundwater to fill and maintain Almaden Lake after restoration of Alamitos Creek. Similar to the Project, this option would separate the lake from creek, and re-contour and cap the lake bed to address the lake's mercury-related water quality issues. Option 3 would create a lake area east of the creek, and a new park area west of the creek, similar to the Project. In order to fill and maintain Almaden Lake, groundwater would be pumped from a new, deep well located adjacent to the lake. Pumped groundwater would be piped into the lake. This option would have a flow-through water management system similar to the Project to maintain lake water levels and water quality, in which water would be pumped out of the lake via a pump station and piped to the Los Alamitos Percolation Pond for groundwater recharge.

This option would meet all of the project objectives, which are to separate Alamitos Creek from Almaden Lake; reduce production of methylmercury, and mercury in target fish in Almaden Lake to meet applicable water quality objectives; remove potential lake entrainment of anadromous fish; improve temperature conditions and reduce predation for native fish; and minimize impacts to existing recreational features.

Although Option 3 would meet all of the project objectives, this option would not reduce any of the significant effects of the Project. Many of the Project's components generating significant effects (e.g., diverting the creek, draining the lake, generating operational noise, etc.) would continue under this option in order to meet the project objectives. However, this option would introduce new concerns associated with pumping groundwater. Implementation of this option would make the District the highest groundwater extractor in Zone W2 of North County. The effects on nearby well users in the aquifer would be unknown. The feasibility of achieving the pumping capacity required under this option also would be unknown. Additional geotechnical exploration and pump tests would need to be undertaken. The daily pumping of groundwater would be dependent on the depth-to-aquifer water table, and the rate at which underlying groundwater would be recharged. The reliability of this water supply would be uncertain. During drought years, it would not be possible to pump groundwater into the lake, resulting in potential declines in lake water quality during these periods (SCVWD, 2018).

Pumping large amounts of groundwater could adversely affect the underlying groundwater basin. The pumped groundwater would be moved into the Los Alamitos Percolation Pond, and should nominally result in a net zero effect on the groundwater basin (i.e., groundwater pumped out would be recharged in the percolation pond). However, Los Alamitos Percolation

Pond has a fixed capacity, and local surface water is currently being directed to the Los Alamitos Percolation Pond for groundwater recharge. Groundwater pumped under this option could displace local water currently being pumped into the pond, potentially adversely affecting the Los Alamitos Percolation Pond water right (APPWR), and surface water or groundwater could be lost from the water supply system (SCVWD, 2018).

Operation of the groundwater pumping system would generate a new noise source in the area. Pumping up to 4,350 AFY of groundwater would require an industrial-capacity pump that would create a substantial new noise source similar to the Project. This option also would be considerably more expensive than the Project. For example, purchase of Almaden Valley Pipeline water under the Project would be approximately $25,000 per year (2018 dollars). However, the expense associated with pumping a similar amount of groundwater would be approximately $5 million dollars per year (2018 dollars) (SCVWD, 2018). This increase in operational expenses would be infeasible for the District, and also would divert funds away from other important District priorities. Option 3 was considered but rejected from further analysis because it would not reduce any significant effects of the Project, and would introduce new issues associated with groundwater extraction.

4.D.4 Option 4. Los Capitancillos Recharge Water Source

Under Option 4, water for Almaden Lake would come from a combination of the Los Capitancillos Recharge Ponds and imported water from the Almaden Valley Pipeline. As with the Project, Option 4 would separate Almaden Lake from Alamitos Creek, and re-contour and cap the lake bed to address mercury-related water quality issues. This option would create a lake area east of Alamitos Creek, and a new park area west of the creek, similar to the Project. Water from the Los Capitancillos Recharge Ponds, approximately one-third of a mile northwest of Almaden Lake, would be used to fill and maintain Almaden Lake. Los Capitancillos water would need to be supplemented by imported water from the Almaden Valley Pipeline to achieve the 4,350 AFY target, as only up to 3,730 AFY would be available from the Los Capitancillos ponds and much of this water would be percolated in the ponds for groundwater recharge (SCVWD, 2018).

A pump station would be constructed to pump water from the Los Capitancillos ponds via a new pipeline approximately one-third of a mile to Almaden Lake. Improvements would be made in the Los Capitancillos pond system to ensure that the ponds would have adequate capacity to accommodate groundwater recharge in the ponds, and also transfer sufficient water to maintain Almaden Lake. The existing pipelines within the Los Capitancillos pond system would be improved to ensure sufficient water would migrate to the eastern-most Los Capitancillos Pond (closest to Almaden Lake). Option 4 would have a flow-through water management system similar to the Project to maintain Almaden Lake water levels and water quality. Almaden Lake water would be pumped out of the lake via a pump station, and piped to the Los Alamitos Percolation Pond for groundwater recharge, similar to the Project.

As described above, a combination of local and imported water would be sent from the Los Capitancillos ponds via Almaden Lake to the Los Alamitos Percolation Pond. Imported water under this option would not affect groundwater recharge in the Los Alamitos Percolation Pond, but recharge capacity could be taken by imported water (displacing local surface water) thereby reducing the amount of APPWR that could be put to beneficial use at the Los Alamitos Percolation Pond, potentially jeopardizing this water right. As a result, the District could prioritize maintaining the use of local water to maintain the APPWR by directing 3,302 AFY to the Alamitos Diversion and potentially limit the amount of source water sent to Almaden Lake (SCVWD, 2018).

Option 4 would meet all of the project objectives, which are to separate Alamitos Creek from Almaden Lake; reduce production of methylmercury, and mercury in target fish in Almaden Lake to meet applicable water quality objectives; remove potential lake entrainment of anadromous fish; improve temperature conditions and reduce predation for native fish; and minimize impacts to existing recreational features.

Although Option 4 would meet all of the project objectives, this option would not reduce any of the significant effects of the Project. The Project elements generating significant effects, such as separating Alamitos Creek from Almaden Lake, draining the lake, and re-contouring and capping the lake bed would continue under Option 4 in order to meet the project objectives. Water acquisition under this option for maintaining Almaden Lake would require more construction activity and an additional pumping station compared to the Project. Option 4 would require making improvements to the pipelines within the Los Capitancillos pond system as well as to the Los Capitancillos ponds to provide sufficient water capacity in the pond system to accommodate both groundwater recharge in the ponds and transfer of water to Almaden Lake (SCVWD, 2018). Compared to the Project, this option would also require an additional pump station at the eastern end of the Los Capitancillos Pond system to pump water from the ponds to Almaden Lake. The Los Capitancillos pump station would be a new noise source in the Project area, and would be within 500 feet of residential and commercial uses, including the La Mirador Senior Apartments housing complex located south of the Los Capitancillos ponds.

In addition, water sourced from the Los Capitancillos Ponds would originate from the upper Guadalupe River watershed, and would contain similar mercury-laden sediment found in Alamitos Creek. Using Los Capitancillos Pond water would re-introduce mercury into Almaden Lake (SCVWD, 2018). Although (similar to the Project) the Almaden Lake bed would be re-contoured to minimize the potential for methylation of mercury, Option 4 could introduce new methylmercury water quality issues to Almaden Lake as compared to the Project, which would utilize only imported Almaden Valley Pipeline water to fill and maintain Almaden Lake. Option 4 was considered but rejected from further analysis because it would not reduce the significant effects of the Project, and would involve more extensive construction efforts at the Los Capitancillos Ponds, introduce a new noise source within 500 feet of sensitive receptors, and could result in lower Almaden Lake water quality as compared to the Project.

4.D.5 Option 5. Alamitos Canal Water Source

Under Option 5, water from the east-adjacent Coyote Creek Watershed would be used to fill and maintain Almaden Lake. Coyote Creek water would be conveyed along the Alamitos Canal. The Alamitos Canal historically transferred water along the Santa Teresa Hills from Coyote Creek to Almaden Lake to be captured for groundwater recharge in the Guadalupe River and Los Alamitos Percolation Pond. Similar to the Project, Option 5 would separate Almaden Lake from Alamitos Creek, and re-contour and cap the lake bed to address mercury-related water quality issues. Option 5 also would create a lake area east of Alamitos Creek, and a new park area west of the creek, as in the Project. Water from the Coyote Creek Watershed would be conveyed via the Alamitos Canal to fill and maintain Almaden Lake. The Alamitos Canal structure is in disrepair, and would need to be rehabilitated in order to be utilized for this purpose. In addition, either a segment of the Coyote Canal (which historically conveyed water into the Alamitos Canal) would similarly need to be rehabilitated, or a water diversion would need to be created in Coyote Creek to pump water into the Alamitos Canal (SCVWD, 2018). Pumping water from Coyote Creek into the Alamitos Canal would require the development of a new pump station.

Option 5 would have a flow-through water management system similar to the Project to maintain Almaden Lake water levels and water quality. Almaden Lake water would be pumped out of the lake via a pump station, and piped to the Los Alamitos Percolation Pond for groundwater recharge, similar to the Project.

This option would meet all of the project objectives, which are to separate Alamitos Creek from Almaden Lake; reduce production of methylmercury, and mercury in target fish in Almaden Lake to meet applicable water quality objectives; remove potential lake entrainment of anadromous fish; improve temperature conditions and reduce predation for native fish; and minimize impacts to existing recreational features.

Option 5 would meet all of the project objectives; however, this option would not decrease any of the significant effects of the Project. The Project elements that would primarily generate significant effects (e.g., separating Alamitos Creek from Almaden Lake, draining the lake, re-contouring and capping the lake bed, etc.) would continue to occur under Option 5 in order to meet the project objectives. However, Option 5 would affect a larger geographic area than the Project, and would extend into an adjacent watershed, creating more geographically-dispersed, construction-related impacts and also greatly increasing Project costs. Under this option, construction activity would include the rehabilitation of the Alamitos Canal, and either the rehabilitation of a portion of the Coyote Canal or the development of a Coyote Creek diversion and pump station to pump Coyote Creek water into the Alamitos Canal. A new point of rediversion would need to be established for the District’s existing water rights in the Coyote Creek Watershed. This rediversion would require the approval of the State Water Resources Control Board, and could take between two to five years to get approvals if the rediversion application is protested (SCVWD, 2018).

In addition, the Alamitos Canal naturally collects stormwater runoff from the areas in the basin uphill from the canal. The canal rehabilitation efforts would be designed to reduce the capture of local stormwater runoff from the Coyote Creek Watershed, but it would be unlikely that unintentional stormwater capture could be eliminated. As a result, winter storm events could convey unplanned stormwater runoff flows into the Alamitos Canal and subsequently into Almaden Lake. Such unplanned winter stormwater flows would require the development of a contingency plan for addressing surge stormwater events. Stormwater runoff also carry increased sediment loads, and these sediments could increase sedimentation in Almaden Lake. Option 5 also would include operations and maintenance work to maintain the Alamitos Canal and the Coyote Creek pump station.

Option 5 was considered but rejected from further analysis. This option would not reduce the significant effects of the Project, but would require more extensive construction, operation, and maintenance efforts that would extend into the adjacent Coyote Creek Watershed. This option also would require a management plan to address potential winter stormwater runoff from the Coyote Creek Watershed being conveyed to the Alamitos Canal and into Almaden Lake, along with the adverse water quality impacts associated with runoff sediment loads being deposited in Almaden Lake.

4.D.6 Option 6. Creek with West Lake and East Open Space

Option 6 would restore the Alamitos Creek alignment, and separate Almaden Lake from Alamitos Creek. The restored creek channel would be within an approximately 5-acre area, as compared to a 11-acre restored creek channel under the Project. The creek section would be about 100-feet wide (compared to 210 to 420-foot wide flood channel under the Project), and the alignment would be designed to convey 100-year flood flows. This option would create a 5-acre West Lake area, and a new 22-acre park/open space east of Alamitos Creek. The new West Lake would be re-contoured, and the bottom would be capped to address the lake's mercury-related water quality issues. SolarBees would be used to promote water circulation in the lake. The pedal boat facility would be relocated to the western bank of the new West Lake (SCVWD, 2013a).

The new park area would be created by filling the lake area east of the creek with clean fill material to blend with the existing ground elevations of the island and surrounding Park areas (SCVWD, 2013a). Converting a 22-acre area of Almaden Lake from open water to park/open space would require considerably larger volumes of fill material and as a result a longer construction period than would be required under the Project.

Under Option 6, Alamitos Creek[4] would supply water to fill and maintain the West Lake. Water for the West Lake would come from Alamitos Creek through inlet and outlet pipes installed at either ends of the lake to allow for the inflow and outflow of water between the lake and the creek. Fish screens would be installed to prevent fish from crossing between the creek and the lake. To reduce the amount of mercury-laden sediment re-entering the lake, a sediment catchment area would be located in the upstream portion of the restored creek section in order to slow creek flows and promote sediment deposition. Both the sediment catchment area and the inlet and outlet pipes would require routine maintenance

[4] A new water right would need to be obtained to divert creek water into the lake.

for sediment removal and disposal. A gravel maintenance road would be constructed along the top of the east creek bank to provide creek maintenance access. The Alamitos Flashboard Dam would be utilized between April and December, and would raise the water surface elevations by approximately 5 feet when in place (SCVWD, 2013a).

This option would meet most of the project objectives, which are to separate Alamitos Creek from Almaden Lake; reduce production of methylmercury, and mercury in target fish in Almaden Lake to meet applicable water quality objectives (although use of creek water would reintroduce some mercury into lake); and remove potential lake entrainment of anadromous fish. This option would release lake water into Alamitos Creek, and would not meet the project objective of improving temperature conditions and reducing predation for native fish. Option 6 would substantially reduce the open water area of Almaden Lake, including the area available for pedal boating. As a result, this option would not minimize impacts to existing recreational features.

Although Option 6 would eliminate the less than significant with mitigation operational noise impact associated with the Project's operation of a pump station, this option would fill approximately 22 acres of Almaden Lake, which are considered potentially jurisdictional waters of the U.S. resulting in a substantial reduction of potential wetlands at the site. Converting Almaden Lake to open space also would remove lacustrine habitat for special-status birds, such as the double-crested cormorant, herons, and egrets. This option would require the placement of a larger amount of fill material than the Project, and as a result Option 6 would increase the construction-related impacts related to fill transport and deposition.

The use of water from Alamitos Creek could reintroduce mercury to the West Lake, and methylmercury production could reoccur in the new lake. In addition, high deposition of sediment would be expected in the restored creek due to the high gravel loads in Alamitos Creek. Routine sediment removal activities in the vicinity of the inlet and outlet pipes and the sediment catchment area could be detrimental to anadromous fish habitat.

Option 6 also would not restore Alamitos Creek and floodplain to the same extent as the Project. This option would dedicate 5 acres to the creek channel and floodplain restoration, as compared to 11 acres under the Project. The riparian corridor would be narrower (i.e., 100 feet wide, as compared to 210 to 420-feet wide under the Project). Conveying 100-year flood flows under this option would require a deeper, less complex creek channel, more artificial hardscape features to control erosion, and less riparian vegetation. The narrower channel would result in lower quality creek habitat for native fish and wildlife than the Project.

A new water right would need to be obtained to divert creek water into West Lake, which would require the approval of a water right change petition by the State Water Resources Control Board and could take between two to five years to approve if the water right amendment is contested. The area available for pedal boating would be greatly reduced, as compared to the Project. In addition, the public has expressed concerns regarding the substantially reduced presence of a lake feature at the Park.

Although Option 6 would eliminate the pump station-related operational noise impact of the Project, this option would increase certain impacts and introduce new concerns, including filling 22 acres of potentially jurisdictional waters of the U.S. and lacustrine habitat for special-status birds, increasing construction-related impacts associated with transport and deposition of fill material, reintroducing mercury to the West Lake through the use of water from the creek possibly contributing to methylmercury production, and requiring increased routine in-creek maintenance and sediment removal activities. As a result, this option was considered but rejected from further analysis.

4.D.7 Option 7. Creek with West Wetland and East Lake

Option 7 would create a new 5-acre wetland area west of Alamitos Creek, and a 22-acre East Lake to the east of Alamitos Creek. This option would separate Alamitos Creek from Almaden Lake, and restore the creek in an approximately 5-acre riparian corridor, as compared to the 11-acre creek corridor under the Project. The creek section under Option 7 would be about 100-feet wide (compared to 210 to 420-foot wide flood channel under the Project), and the alignment would be designed to convey 100-year flood flows.

The new wetland area would be created by re-contouring and capping the lake bottom to eliminate contact between the existing mercury-laden sediment and the water in the new wetland area. The wetland would be connected to Alamitos Creek via inlet and outlet pipes installed at either end of the wetland to allow for the inflow and outflow of water between the wetland area and the creek. Fish screens at the pipe ends would prevent fish from crossing between the creek and wetland area. Aquatic plants would be sited in one to two feet of shallow water, and would consist largely of bulrush and cattail species.

Similarly, East Lake would be created by re-contouring the lake bed and capping the bottom to address the lake's mercury-related water quality issues. The existing island would remain, and would not be re-contoured to increase its bank stability. SolarBees would continue to be used to promote water circulation in the lake. The pedal boat facility would be relocated to the eastern bank of East Lake (SCVWD, 2013a).

Alamitos Creek[5] would supply water to fill and maintain East Lake through inlet and outlet pipes installed at either ends of the lake to allow for the inflow and outflow of water between the lake and the creek. Fish screens would be installed to prevent fish from crossing between the creek and the lake. To reduce the amount of mercury-laden sediment re-entering East Lake, a sediment catchment area would be located in the upstream portion of the restored creek section in order to slow creek flows and promote sediment deposition. The sediment catchment area and the inlet and outlet pipes for the wetland and the lake would require routine maintenance for sediment removal and disposal. A gravel maintenance road would be constructed along the top of the east creek bank to provide creek maintenance access. The Alamitos Flashboard Dam would be utilized between April and

[5] A new water right would need to be obtained to divert creek water into the lake.

December, and would raise the water surface elevations by approximately 5 feet when in place (SCVWD, 2013a).

This option would partially meet the project objectives, which are to separate Alamitos Creek from Almaden Lake; reduce production of methylmercury, and mercury in target fish in Almaden Lake to meet applicable water quality objectives; remove potential lake entrainment of anadromous fish; and minimize impacts to existing recreational features. Option 7 would release lake water into Alamitos Creek, and would not meet the project objective of improving temperature conditions and reducing predation for native fish.

Option 7 would eliminate the operational noise impact of the Project, but would introduce new environmental issues. Relying on a gravity-fed water conveyance between the creek and wetlands/lake, Option 7 would eliminate the less than significant with mitigation operational noise impact associated with the Project's operation of a pump station. However, this option would generate similar construction-related impacts associated with isolating the creek channel, and re-contouring and capping the lake bottom. Option 7 would create 5 acres of new wetlands with associated benefits to biological and hydrologic resources. However, this artificially-created and maintained wetland would be of marginal quality because it would require piped creek water to maintain it. Further, the use of water from Alamitos Creek could reintroduce mercury to the wetlands and East Lake, and methylmercury production could reoccur in these waters. This option would require regular disturbance of the creek bed for routine sediment removal activities to maintain the inlet/outlet pipes, and the sediment catchment area. As a result, the quality of the creek corridor habitat for anadromous fish and other aquatic species would be lower than under the Project due to increased regular maintenance activities in the creek channel.

This option also would not restore Alamitos Creek and floodplain to the same extent as the Project. Option 7 would dedicate 5 acres to the creek channel restoration, as compared to 11 acres under the Project. The larger creek restoration area under the Project would allow for more extensive incorporation of features such as broader floodplains, proper channel meander, rock weirs/step pools, in-channel wetlands, and riparian vegetation restoration, all of which would add to habitat diversity beneficial for native fish and wildlife.

Similar to Option 6, this option would require approval of a water right change petition by the State Water Resources Control Board to divert creek water into the lake and the wetland. With respect to the new wetland, the public has expressed concerns that the wetland could develop stagnant water and become a new source of unpleasant odors as well as a breeding ground for mosquitos. Option 7 was considered but rejected from further analysis because it could potentially reintroduce methylmercury production in the East Lake and the wetland through the use of creek water; would require on-going, in-creek maintenance activities to remove sediment, diminishing the quality of anadromous fish habitat; and would not restore Alamitos Creek's stream function to the same extent as the Project.

4.D.8 Option 8. Expanded Creek Restoration

Option 8 would expand the Project area to include the area downstream of Almaden Lake (north of Coleman Road) to the Alamitos Diversion Dam, doubling the Alamitos Creek restoration area from 1,800 linear feet to approximately 3,450 linear feet. The National Oceanic and Atmospheric Administration (NOAA), National Marine Fisheries Service identified this option in the agency's comment letter on the Notice of Preparation of an Environmental Impact Report for the Almaden Lake Improvement Project (NOAA, 2014). Option 8 would incorporate all of the elements of the Project, and would extend restoration of Alamitos Creek to include the 1,700-foot stretch of Alamitos Creek between Coleman Road and the Alamitos Diversion Dam, as well as the Los Alamitos Percolation Pond. However, to implement such a project, riparian channel modifications would likely be required well downstream of the Alamitos Diversion Dam.

This option also would include replacing the Alamitos Diversion Dam with a pumping plant (and some structure to capture water) and fish screens to restore riffles, runs, and other fast-water, riverine habitat features that support native anadromous fish. Operation of the Alamitos Flashboard Dam (typically April through December) raises the water surface elevation upstream of the dam by approximately five feet, and creates deeper, slower moving water. The District operates the Alamitos Flashboard Dam as part of its public water supply mission to provide safe, clean water to its users. The rise in water elevation associated with the dam allows water to be diverted into the Los Alamitos Percolation Pond system for groundwater recharge. The District has established water rights of up to 18,700 acre-feet that can be utilized with operation of the Alamitos Flashboard Dam (SCVWD, 2011), and alteration of the agency's water rights would require the approval of a water right change petition by the State Water Resources Control Board and could take between two to five years to approve if the water right amendment is contested.

Option 8 would meet all of the project objectives, which are to separate Alamitos Creek from Almaden Lake; reduce production of methylmercury, and mercury in target fish in Almaden Lake to meet applicable water quality objectives; remove potential lake entrainment of anadromous fish; improve temperature conditions and reduce predation for native fish; and minimize impacts to existing recreational features.

The purpose of the Project is to restore Alamitos Creek's stream function within the footprint of Almaden Lake in order to improve physical habitat for steelhead and other anadromous fish, while improving water quality within the lake footprint. By adopting a larger Project area with a doubled length of Alamitos Creek, this option would improve more anadromous fish habitat than the Project. However, this option would expand the Project outside of the footprint of Almaden Lake. Although this option would be beneficial to native anadromous fish and its related habitat, Option 8 would be infeasible because it would be beyond the scope and the budget provided by the District's Board.

Option 8 also would not decrease any of the significant effects of the Project. This option would include all of the elements of the Project, and would therefore include all of the significant environmental impacts of the Project. Because Option 8 would expand the Project footprint to include the area between the lake and the Alamitos Diversion Dam, this option would have more extensive construction-related impacts than would occur under the Project. In addition, the area periodically inundated by the operation of the Alamitos Flashboard Dam, including the Los Alamitos Percolation Pond, are potentially jurisdictional waters of the U.S. Ceasing the operation of the Alamitos Flashboard Dam as proposed under this option could reduce the size and extent of these potentially jurisdictional waters.

Option 8 was considered but rejected from further consideration. This option does not decrease any of the significant environmental effects of the Project, could result in the loss of potentially jurisdictional waters of the U.S. downstream of the Project area, and is infeasible because it expands beyond the scope and the budget for the Project provided by the District’s Board.

4.D.9 Option 9. East Creek with Large West Lake

Option 9 suggests relocating Alamitos Creek to the eastern side of Almaden Lake, and restoring the creek roughly following the eastern edge of Almaden Lake. The creek would be separated from the lake with a berm on the west side of the creek featuring approximately the same cross-section as the levee proposed under the Project (SCVWD, 2013b).

Almaden Lake would be a single lake to the west of the restored creek, and the lake would extend west to the existing beach. This option was developed and proposed by members of the public (SCVWD, 2013c). Similar to the Project, this option would separate the lake from creek (although this option would relocate the creek to the east, instead of maintaining it in its natural corridor). Under Option 9, the lake would be a closed system without a flow-through water management system, and this option would not address the lake’s mercury-related water quality issues.

This option would partially meet the project objectives predominantly by separating the creek from the lake, including objectives to separate Alamitos Creek from Almaden Lake; remove potential lake entrainment of anadromous fish; ; improve temperature conditions and reduce predation for native fish; and minimize impacts to existing recreational features. Lake water quality would not be addressed under this option, and as a result, this option would not meet the project objective related to reducing production of methylmercury, and mercury in target fish in Almaden Lake to meet applicable water quality objectives.

Although Option 9 as conceived would meet some of the project objectives, this option would not be technically feasible. The option would be constrained by the physical conditions of the Project location, predominantly the fixed existing site elevation change between the entry and exit points at the lake (SCVWD, 2013c). Rerouting Alamitos Creek outside of its natural corridor to the eastern edge of the existing lake would require substantial geoengineering efforts to achieve necessary ground elevations at the site, and would also require hardscape banks to avoid Alamitos Creek returning to its natural channel, particularly during high flow periods. Option 9 would require increased earth-moving construction work than the Project, resulting in increased construction-related impacts. In addition, the relocated creek channel would provide poor anadromous fish habitat, as compared to the Project. As a result, Option 9 was considered but rejected from further analysis because it would be technically infeasible due to physical site elevation limitations associated with relocating the creek, would not address the lake's mercury-related water quality issues, would result in increased earth-moving construction-related impacts, and would provide poor anadromous fish habitat in the creek, as compared to the Project.

4.D.10 Option 10. Creek in Underground Culvert

Under Option 10, Alamitos Creek would be separated from Almaden Lake by being placed in an underground culvert and routed under the lake. The culvert would run the length of the lake in a north-south alignment, in approximately the same location as the existing creek. This option would remove the existing mercury from the lake bed to partially address the lake's mercury-related water quality issues. This option was developed and proposed by the public (SCVWD, 2013b and 2013c). Under this option, Almaden Lake would become a closed lake system, with no circulation of water into and out of the lake.

Option 10 would not meet the purpose of the Project to restore Alamitos Creek's stream function within the footprint of Almaden Lake in order to improve physical habitat for steelhead and other anadromous fish, while improving water quality within the lake footprint. In particular, culverting Alamitos Creek would meet three of the project objectives: separating Alamitos Creek from Almaden Lake, improving temperature conditions and reducing predation for native fish, and minimizing impacts to existing recreational features. This option would not meet the remaining project objectives. Culverting Alamitos Creek would make this section of the creek impassible for anadromous fish, and would not fulfill the intent and purpose of the project objective to remove potential lake entrainment of anadromous fish. In addition, removing the mercury-contaminated sediment from the lake bed may not be a permanent solution to address the mercury-related water quality issues in Almaden Lake, and the related project objective to reduce production of methylmercury, and mercury in target fish in Almaden Lake to meet applicable water quality objectives would not be met.

Option 10 also would be technically infeasible. The underground culvert would need to be sized to convey 100-year storm flows. The District estimates that the Alamitos Creek culvert would need to be approximately 25 to 40-feet in diameter to be of sufficient capacity to convey 100-year flood flows (SCVWD, 2013c). Installation and maintenance of a culvert of this size would be cost prohibitive and technically infeasible for the District. Option 10 would neither meet the majority of the project objectives, nor would it be technically feasible. As a result, this option was considered but rejected from further consideration.

4.D.11 Option 11. Additional SolarBees

Option 11 would install a total of 10 SolarBees in Almaden Lake to improve water circulation. As described in Chapter 3, Section 3.K Hydrology and Water Quality, SolarBees are solar-powered circulators designed to mix surface water with higher dissolved oxygen into lake bottom waters and vice versa, thereby increasing the oxygen content of lower water layers and reducing mercury methylation. Relying on a solar-powered circulation pump, the devices draw water through a vertical pipe, oxygenate the water via contact with the air surface, and release the water. The Project proposes to install a total of seven SolarBees, including two within the deep waters of the lake to improve overall mixing of water near the bottom and one within the shallow waters to improve circulation of water within the top of the water column. Option 11 would install an additional 3 SolarBees, and would bring the total number of SolarBees operating in Almaden Lake to 10 SolarBees.

By solely adding additional SolarBees to Almaden Lake, Option 11 would not meet the purpose of the Project to restore Alamitos Creek's stream function within the footprint of Almaden Lake in order to improve physical habitat for steelhead and other anadromous fish, while improving water quality within the lake footprint. Option 11 would not separate Alamitos Creek from Almaden Lake, and therefore would not remove the hazard of potential lake entrainment of anadromous fish, nor would this option improve temperature conditions and reduce predation for native fish. As discussed in Chapter 3, Section 3.K, Hydrology and Water Quality, while SolarBees were shown to provide some limited benefits to water quality, methylmercury concentrations in small and large fish have not meaningfully decreased since the introduction of SolarBees in the lake. SolarBees have not adequately addressed Almaden Lake's water quality issues, and are not considered a long-term solution (SCVWD, 2011). As a result, Option 11 would not meet the project objective to reduce production of methylmercury, and mercury in target fish in Almaden Lake to meet applicable water quality objectives. Option 11 would provide similar recreational features as would be provided under the Project and would not include any of the construction-related disruptions to recreational use of the Park, so this option would meet the project objective to minimize impacts to existing recreational features.

This option would avoid the short-term, construction-related impacts of the Project. Option 11 would not involve any of the ground-disturbing elements of the Project, such as recontouring and capping the lake bottom and creating a levee to separate Alamitos Creek from Almaden Lake. As noted above, however, this option also would not ameliorate any of the adverse impacts upon anadromous fish and water quality that the Project has been designed to improve.

Overall, Option 11 would not meet the purpose of the Project to restore Alamitos Creek's stream function within the footprint of Almaden Lake in order to improve steelhead and other anadromous fish habitat. This option would not separate the creek from the lake, remove potential lake entrainment of anadromous fish, nor would it reduce release of Almaden Lake's warm water downstream into the Guadalupe River. Option 11 also would not reduce production of methylmercury, and mercury in target fish in Almaden Lake to meet applicable water quality objectives. As a result, Option 11 was considered but rejected from further consideration.

4.E References

National Oceanic and Atmospheric Administration (NOAA), National Marine Fisheries Service, 2014. Agency Comment Letter on the Almaden Lake Project, Notice of Preparation of an Environmental Impact Report. May 7, 2014.

San Francisco Regional Water Quality Control Board (RWQCB), 2008, Guadalupe River Watershed Mercury Total Maximum Daily Load (TMDL) Project Basin Plan Amendment. Adopted by RWQCB October 8, 2008. Approved by U.S. Environmental Protection Agency on June 2, 2010. Available: http://www.swrcb.ca.gov/sanfranciscobay/water_issues/programs/TMDLs/guadaluperivermercurytmdl.shtml.

Santa Clara Valley Water District (SCVWD), 2006. Water Resources Protection Manual. August 22, 2006. Available: http://www.valleywater.org/uploadedFiles/Programs/BusinessInformationPermits/Permits/WaterResourcesProtection/One-Click%20WRPManual.pdf.

SCVWD, 2011. Almaden Lake Opportunities and Constraints Report. June 30, 2011.

SCVWD, 2013a. Conceptual Alternatives Report (Final Draft). January 2013.

SCVWD, 2013b. “Restoring Almaden Lake: An update on addressing mercury contamination and water quality.” Power Point Presentation dated September 5, 2013.

SCVWD, 2013c. Strong Opinions for Almaden Lake at Sept. 5 Meeting. Posted by WDCommunications. September 13, 2013.

SCVWD, 2018. Water Source Options Report, Almaden Lake, Project No. 26044001, February 2018.

CHAPTER 5
Cumulative Impacts

This chapter addresses the cumulative impacts of the Almaden Lake Improvement Project (Project). The purpose of this analysis is to disclose significant cumulative impacts that would result from implementation of the Project in combination with past, present, and reasonably foreseeable probable future projects in and beyond the Project area. "Cumulative impacts" refers to two or more individual effects which, when considered together, are considerable or which compound or increase other environmental impacts (CEQA Guidelines §15354).

5.A CEQA Analysis Requirements

CEQA Guidelines Section 15130 requires that an Environmental Impact Report (EIR) discuss a Project's contribution to cumulative impacts. The cumulative impact analysis may be less detailed than the analysis of a given project's individual effects (CEQA Guidelines § 15130(b)). The cumulative impact from several projects is defined as:

> ….the change in the environment which results from the incremental impact of the project added to other closely related past, present, and reasonably foreseeable probable future projects. Cumulative impacts can result from individual minor but collectively significant projects taking place over a period of time (CEQA Guidelines § 15355(b)).

Section 15130(b) requires one of the following approaches for an adequate discussion of significant cumulative impacts of a project:

- 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.
- A summary of projections contained in an adopted general plan or related planning document or in an adopted or certified environmental document that described or evaluated regional or area-wide conditions contributing to the cumulative impact.

This EIR cumulative impact analysis uses the first ("list") approach.

5.B Projects Considered in Cumulative Analysis

Table 5-1 lists past, present, and reasonably foreseeable probable future projects within and near the Project area whose impacts could add to the Project's impacts. This table presents the planning jurisdiction, a brief description, the estimated construction schedule associated with each Project, and the distance of that Project to the Project area. Cumulative Project information listed in Table 5-1 is based on information supplied by the City of San José and the District, as well as information from other entities, review of EIRs, and review of information posted on agency websites.

TABLE 5-1
LIST OF PROJECTS EVALUATED FOR CUMULATIVE IMPACTS IN THE ALMADEN LAKE IMPROVEMENT PROJECT VICINITY

Project Number	Project Name	Location	Project Description	Distance from Proposed Project	Potential Cumulative Impact Topics	Schedule/Status
DISTRICT PROJECTS						
	Expedited Purified Water Program	Components are throughout Santa Clara County	Indirect potable reuse (IPR) project that could provide up to 24,000 acre-feet (“AF”) annually of purified water and 18 miles of conveyance pipeline annually to recharge the Santa Clara Valley’s groundwater subbasins and aquifers.	~5 miles west of Almaden Lake	Hydro/Groundwater; Utilities; Traffic; Hazards	Unknown/initial planning phase
	Upper Guadalupe River Flood Protection Project (SCVWD and USACE)	5.5 mile reach between Highway 280 and Blossom Hill Road	This Project is a partnership between the U.S. Army Corps of Engineers (Corps) and the District to plan, design and construct improvements along 5.5 miles of channel extending from Interstate 280 to Blossom Hill Road. Improvements include channel widening, construction of floodwalls and levees, replacement of road crossings and planting of streamside vegetation. Reducing flood frequency and bank erosion will improve water quality, while planned mitigation measures will give fish access to an additional 12 miles of habitat within and upstream of the Project reach. Includes seven Project areas: reaches 6, 7, 8, 9, 10, 11 and 12. (Reach 6 completed in 2012; Reach 10B completed in 2012; Reach 12 (Branham Lane to Blossom Hill Road) completed in 2016)	~1 mile north of Almaden Lake	Hydro; Utilities; Traffic; Hazards; Geo; Bio	Design and construction phase Construction schedule is currently unknown because it is dependent on receipt of Federal funding.
	Almaden Dam Improvements	Almaden Dam/Reservoir; Almaden Calero Canal	This Project plans, designs, and constructs improvements to the Almaden Dam Outlet Works.	Dam is ~5.5 miles south of Almaden Lake	Hydro; Utilities	Design 2018 – 2021 Construction 2021 - 2023
	Calero and Guadalupe Dams Seismic Retrofits	Calero Dam/Reservoir; Guadalupe Dam/ Reservoir	This Project plans, designs, and constructs improvements to the Calero and Guadalupe Dams.	Guadalupe and Calero Dams are ~3 and ~6 miles south of Almaden Lake, respectively.	Hydro; Utilities	2018 –2021 Design phase Construction 2020 - 2024

TABLE 5-1 (Continued)
LIST OF PROJECTS EVALUATED FOR CUMULATIVE IMPACTS IN THE ALMADEN LAKE IMPROVEMENT PROJECT VICINITY

Project Number	Project Name	Location	Project Description	Distance from Proposed Project	Potential Cumulative Impact Topics	Schedule/Status
DISTRICT PROJECTS (cont.)						
	10 Year Pipeline Inspection & Rehabilitation	Pipelines are throughout Santa Clara County	This Project involves the inspection, planning, design, and renewal of the District's pipelines and tunnels to accomplish the following objectives: • Perform dewatering and internal inspections of District's pipelines and tunnels • Renew distressed pipe sections as required. Renewal encompasses the actions of repair, rehabilitation, and replacement. • Perform maintenance and repair activities as required • Replace old valves, flow meters, pipeline appurtenance assemblies, and piping as appropriate. • Modify failure prone pipeline appurtenance connections. This Project funds inspection and renewal work along the various pipelines and tunnels as identified below: • 2019: Cross Valley Pipeline, Calero Pipeline, Central Pipeline • 2023: Almaden Valley Pipeline, Santa Teresa Force Main, Rinconada Force Main, Santa Clara Conduit (SC Tunnel to SV1), West Pipeline (RWTP to Cox LV) • 2021: Parallel East Pipeline, West Pipeline, Santa Clara Distributary, Santa Clara Conduit, Anderson Force Main • 2023: Almaden Valley Pipeline, Santa Teresa Force Main, Rinconada Force Main, Santa Clara Conduit, West Pipeline (Cox LV to Grainger) • 2022: Pacheco Conduit, Pacheco Tunnel Reach 2, Santa Clara Tunnel, Penitencia Force Main, Penitencia Delivery Main, South Bay Aqueduct Retrofit Inspection	Almaden Valley Pipeline is ~0.5 mile south of and ~2 miles east of Almaden Lake	Utilities; Noise; Traffic; Geo; Hazards	July 2017 – June 2027

TABLE 5-1 (Continued)
LIST OF PROJECTS EVALUATED FOR CUMULATIVE IMPACTS IN THE ALMADEN LAKE IMPROVEMENT PROJECT VICINITY

Project Number	Project Name	Location	Project Description	Distance from Proposed Project	Potential Cumulative Impact Topics	Schedule/Status
DISTRICT PROJECTS (cont.)						
	FAHCE Implementation	Guadalupe, Coyote, and Stevens Creek Watersheds	The FAHCE (Fish and Aquatic Habitat Collaborative Effort) Settlement Agreement in 2003 grew out of a 1996 Water Rights Complaint. Components of the conservation measures are likely to include revised reservoir operations rule curves, instream channel enhancements; and instream barrier removals. When implemented, the FAHCE Fish Habitat Restoration Plan (FHRP) will contain conservation measures designed to restore and maintain healthy fisheries in the Coyote Creek, Guadalupe Creek, and Stevens Creek watersheds.	Project sites are variable	Bio; Hydro	July 2020– June 2024
	Stream Maintenance Program (SMP)	Throughout Santa Clara County	The District owns and manages about 275 miles of streams. Each year, portions of these streams are inspected and prioritized for maintenance projects such as sediment removal, vegetation management, clearing of trash and debris, and stabilization of banks that have eroded during high water flows. The SMP ensures streams with completed flood protection projects continue to function as designed to protect homes and businesses.	Project sites vary but can include sites on Alamitos Creek, Guadalupe Creek and Guadalupe River.	Air Quality, Bio, Fisheries, Geology, GHG, Hydro, Noise	Ongoing program. Current permits run through 2024.
	Safe, Clean Water and Natural Flood Protection Priority B1: Impaired Water Bodies Improvement	Calero, Guadalupe, Almaden, and Stevens Creek Reservoirs	This group of projects helps the District meet surface water quality standards and reduce pollutants in streams, groundwater, lakes and reservoirs. Efforts are carried out in compliance with the Regional Water Quality Control Board (RWQCB) Total Maximum Daily Loads (TMDLs) standards as they continue to evolve (TMDLs are the maximum amount of a pollutant that a water body can receive and still safely meet water quality standards). Under this Project the district employs treatment systems in reservoirs to reduce methylation of mercury, and also helps create realistic plans and expectations for reducing contaminant loads by engaging in the regulatory development process with the RWQCB for new and emerging contaminants.	~3 to ~6 miles south of Almaden Lake	Hydro, Bio	2014 - 2028

TABLE 5-1 (Continued)
LIST OF PROJECTS EVALUATED FOR CUMULATIVE IMPACTS IN THE ALMADEN LAKE IMPROVEMENT PROJECT VICINITY

Project Number	Project Name	Location	Project Description	Distance from Proposed Project	Potential Cumulative Impact Topics	Schedule/Status
DISTRICT PROJECTS (cont.)						
	Safe, Clean Water and Natural Flood Protection Priority D1: Management of Revegetation Projects	Various	This Project supports District maintenance of at least 300 acres of existing revegetation projects throughout five watersheds, and provides for maintenance of future revegetation sites. Funding for this Project ensures that design objectives of all revegetation projects are maintained during the establishment period so that mitigation results in functional habitat that can support wildlife	Project sites are to be determined but may include: portions of the Upper Guadalupe River, Lower/Upper Berryessa, Upper Llagas Creek, and Lower Penitencia Flood Protection projects; and Lower Silver, San Francisquito, and Permanente Creeks.	Bio, Hydro	2014 – 2028
	Safe, Clean Water and Natural Flood Protection Priority D2: Revitalize Stream, Upland and Wetland Habitat	Guadalupe Watershed	Priority D2 projects allow the District to remove non-native, invasive plants, and revegetate habitat with native species when needed. Funding also restores degraded habitat between revegetated sites to create a more contiguous habitat corridor for wildlife. This Project includes targeted control of especially damaging non-native, invasive plant species such as giant reed (*Arundo donax*), as well as education for nearby landowners and other stakeholder groups on the control of harmful species. Priority D2 projects also help implement the Stream Corridor Priority Plans developed in Priority D3. • Completing 2.5 acres of non-native tree, shrub, and vine removals along the Guadalupe River for the Clean, Safe Creeks and Natural Flood Protection grant and to meet U. S. Army Corps of Engineers levee and flood protection criteria. Here are maps of pre-revitalization non-native and invasive plant cover prior to removal: • Non-native woody riparian vegetation at Guadalupe River	Project sites are to be determined.	Bio, Hydro	2014 – 2028

TABLE 5-1 (Continued)
LIST OF PROJECTS EVALUATED FOR CUMULATIVE IMPACTS IN THE ALMADEN LAKE IMPROVEMENT PROJECT VICINITY

Project Number	Project Name	Location	Project Description	Distance from Proposed Project	Potential Cumulative Impact Topics	Schedule/Status
CITY OF SAN JOSÉ/OTHER PROJECTS						
			• Revitalizing approximately 14 acres of non-native habitats on the Guadalupe River, Stevens Creek, Saratoga Creek, and South San Francisco Bay.			
	South Bay Water Recycling Program	Cities of San José, Santa Clara, and Milpitas	The entire Project consists of 140 miles of pipeline and more are projected to be installed. The Project includes 5 pump stations and 3 above-ground storage reservoirs with combined capacity of 9.5 million gallons. Water is used for irrigation, industrial cooling, and toilet flushing in dual-plumbed commercial and municipal buildings.	Adjacent to Almaden Lake	Aesthetics, Hazards and Hazardous Materials, Hydrology and Water Quality	2012 – ongoing
	Communications Hill	Communications Hill Blvd @ Hillsdale Ave	The entire Project is a mixed use development for up to 2,200 residential units (single family and multifamily), up to 67,500 square feet of commercial/retail uses, 55 acres of industrial park uses, public parks, open space, trails, streets, stormwater facilities, and other associated supporting infrastructure on approximately 332 gross acres, as allowed within the Communications Hill Specific Plan Area.	~3 miles north of Almaden Lake		2014 – ongoing Approved/under construction
	County of Santa Clara Parks: Rancho San Vicente Staging Area Development	McKean Road @ Fontini Road, San José	New park entrance, public access to Calero County Park. 25 trailer spaces, 90 car parking spaces, turnout/overflow parking, restroom, picnic area.	~4.5 miles southeast of Almaden Lake		Status Unknown
	County of Santa Clara Parks: Calero County Park Trails	Calero County Park	**County of Santa Clara.** The county's project provides access to previously inaccessible areas adjacent to Calero Reservoir at Calero County Park with 5 miles of new multi-use, natural surface trails. The county also committed to comply with the Santa Clara Valley **Habitat Plan.** These improvements to the park, in the Guadalupe watershed, will benefit residents from all over Santa Clara County. The county was awarded $200,000 in grant funds and the total project cost is estimated at $348,000.	~6 miles south of Almaden Lake	Hydro; Bio	Status Unknown

TABLE 5-1 (Continued)
LIST OF PROJECTS EVALUATED FOR CUMULATIVE IMPACTS IN THE ALMADEN LAKE IMPROVEMENT PROJECT VICINITY

Project Number	Project Name	Location	Project Description	Distance from Proposed Project	Potential Cumulative Impact Topics	Schedule/Status
CITY OF SAN JOSÉ/OTHER PROJECTS (cont.)						
	County of Santa Clara Parks: Calcine Roads Remediation Project	Almaden Quicksilver County Park	The Project would remove calcine pavement used as surface cover on fire roads and trails (for purposes of this document, roads and trails shall be used interchangeably) in Almaden Quicksilver County Park (AQ County Park) that are identified as containing calcine pavements. The Project would include removal of all calcine pavement and replacement with clean soil; the repair of inboard drainage ditches; and stabilization of existing slumps and over steepened road edges.	~5 miles south of Almaden Lake	Hydro; Bio	Construction Complete
	County of Santa Clara Parks: Hacienda and Deep Gulch Remediation Project	Almaden Quicksilver County Park	The Hacienda and Deep Gulch Remediation Project (Project) is a mercury remediation and habitat restoration project in the Hacienda Furnace Yard Area of Almaden Quicksilver County Park (AQS County Park) and beneath the Alamitos Creek Bridge on Alamitos Road. AQS Park is a 3,977-acre area owned and operated by County of Santa Clara Parks and Recreation Department (County Parks). Alamitos Creek Bridge is owned and maintained by County of Santa Clara Roads and Airports Department.	~5 miles south of Almaden Lake	Hydro, Bio	Hacienda: October 2017 – October 2018 Deep Gulch: Unknown
	County of Santa Clara Parks: Los Gatos Creek Trail at Vasona County Park	Vasona County Park	A series of trail improvements for bikes and pedestrians	~5 miles west of Almaden Lake	Hydro, Bio, Recreation	In progress as of 9/26/16
	San José Parks: Almaden Lake All Inclusive Park Equipment Upgrade Project	Almaden Lake Park – Existing playground area in the northwest corner of the park	This Project will install specialized park equipment in the northwestern side of the park in the existing playground area. The footprint of the existing park will not change.	Adjacent to proposed Project footprint	Air Quality, Transportation, Noise, Recreation, Aesthetics	Initial planning phase – construction tentatively scheduled for 2021
	San José Parks: Branham Park Enhancements	Branham Park: Branham Lane @ Tupolo Drive	The work will include replacing the existing play lot including new play equipment, surfacing and shade covers, replacing the existing walking circuit with a new porous concrete walkway, planting vines along the chain-link fencing, two new security lights by the existing pavilion and irrigation repairs	~2 miles northwest of Almaden Lake	Hydro, Bio, Recreation	Status Unknown
	San José Parks: Del Monte Park Expansion	Del Monte Park; Auzerais Ave and Sunol St	Expand park by 4 acres	~5.5 miles north of Almaden Lake	Hydro, Bio, Recreation	Approved

TABLE 5-1 (Continued)
LIST OF PROJECTS EVALUATED FOR CUMULATIVE IMPACTS IN THE ALMADEN LAKE IMPROVEMENT PROJECT VICINITY

Project Number	Project Name	Location	Project Description	Distance from Proposed Project	Potential Cumulative Impact Topics	Schedule/Status
CITY OF SAN JOSÉ/OTHER PROJECTS (cont.)						
	Samaritan Medical Center Master Plan Project	2577 Samaritan Court	Development of up to 360,000 square feet of commercial space and parking structures.	~4 miles	Transportation	Pending
	Equinox	San Ignacio and Great Oaks	579,000 sq ft facility.	~4 miles	Transportation	Pending
	Guadalupe Rubbish Disposal Co., Inc. Landfill-Gas-to-Energy Facility Relocation	15999 Guadalupe Mines Road	A Planned Development Permit Amendment to (1) decommission and deconstruct the existing landfill-gas-to-energy (LFGTE) plant and enclosed flare located within the eastern portion of the permitted landfill solid waste disposal area and (2) construct a new LFGTE plant and enclosed flare on an existing paved area adjacent to the existing materials recovery facility and equipment maintenance shop building, all within the boundaries of the Guadalupe Rubbish Disposal Co., Inc. Facility site.	~2 miles southwest of Almaden Lake	Transportation	Pending
	Santa Clara Valley Habitat Plan	Santa Clara County	The Santa Clara Valley Habitat Plan (Plan) provides a framework for promoting the protection and recovery of natural resources, including endangered species, while streamlining the permitting process for planned development, infrastructure, and maintenance activities. The Plan was adopted by the City of San José on January 29, 2013.	Countywide	Biological Resources	Implementation Phase

Cumulative projects provided in Table 5-1 are considered in the impact analysis below, as relevant to each CEQA resource area category. Geographic boundaries for each resource area impact analysis are discussed below, for each potential cumulative impact. As indicated in Table 5-1, a total of 25 projects are located proximate to project facilities.

5.C Cumulative Impact Analysis

5.C.1 Significance Criteria

Implementation of the Project would have significant cumulative impacts if it were to:

- Have impacts that would be individually limited but cumulatively considerable ("cumulatively considerable" means that the incremental effects of a project are significant when viewed in connection with the effects of past, present, and reasonably foreseeable probable future projects).

This EIR has determined that the Project would have no impacts related to Land Use, Mineral Resources, Population and Housing, Tribal Cultural Resources, and Wildfire (see Chapter 3, Environmental Setting, Impacts and Mitigation Measures). Therefore, the Project would not contribute to cumulative impacts related to these topics. The remaining topics addressed in Chapter 3 are described below.

5.C.2 Impact Summary

Potential cumulative impacts related to the construction and operations of the Project are described in this section by environmental resource topic, since the geographic scope of the impact can vary by topic. Each impact discussion below assesses the potential for the Project to contribute to significant cumulative impacts when considered in combination with the effects of other projects listed in Table 5-1. **Table 5-2** presents a summary of the cumulative impacts.

TABLE 5-2
SUMMARY OF CUMULATIVE IMPACTS

Impact Number and Topic	Significance of Project's Contribution to Impact Before Mitigation	Significance Determination After Mitigation
5.A: Aesthetics	S	SU
5.B: Agriculture and Forestry Resources	LS	LS
5.C: Air Quality	S	LSM
5.D: Biological Resources	S	LSM
5.E: Fisheries Resources	S	LSM
5.F: Cultural Resources	S	LSM
5.G: Energy	S	LSM
5.H: Geology and Soils	LS	LS
5.I: Greenhouse Gas Emissions	LS	LS
5.J: Hazards and Hazardous Materials	LS	LS

TABLE 5-2 (continued)
SUMMARY OF CUMULATIVE IMPACTS

Impact Number and Topic	Significance of Project's Contribution to Impact Before Mitigation	Significance Determination After Mitigation
5.K: Hydrology and Water Quality	S	LSM
5.L: Noise	S	LSM
5.M: Public Services	LS	LS
5.N: Recreation	LS	LS
5.O: Transportation	LS	LS
5.P: Utilities and Service Systems	LS	LS

NOTE: The significance determinations presented in this table assume implementation of all applicable federal, state, and local regulations as well as the mitigation measures identified in Chapter 3.

LSM = Less than Significant impact after mitigation
S = Significant impact
LS = Less than Significant Impact
SU = Significant and Unavoidable Impact

Aesthetics

Impact 5.A: Cumulative impacts on scenic resources (vistas, roadways, and designated scenic areas), scenic resources, or the visual character of public views of the Project area and its vicinity, or substantially increase light or glare in the Project area and its vicinity. (Significant and Unavoidable)

For visual impacts, the geographic scope of potential cumulative impacts includes the Project area and its immediate vicinity, defined as being located within 0.5 mile of the Project site.

Cumulative aesthetics impacts could occur if the Project and the cumulative scenario projects identified in Table 5-1 involved activities that would collectively result in substantial adverse effects on a scenic vista, substantially damage scenic resources including trees and historic buildings, substantially degrade the existing visual character or quality of public views of the Project vicinity, or create substantial new light or glare that would interfere with views. These effects could occur if construction of new facilities, removal of large trees or riparian canopy, or other proposed changes were to affect the same visual resources. Temporary cumulative aesthetics could occur if the cumulative Projects' construction schedules overlap with the Project.

The following cumulative scenario projects would be located or would include elements that would be within 0.5 mile of the Project:

- 10-Year Pipeline Rehabilitation (pipelines are 0.5 mile from the project)
- South Bay Water Recycling Program (pipelines are adjacent project)
- San José Parks: Almaden Lake All Inclusive Park Equipment Upgrade Project (within Project study area)

The following cumulative scenario projects could have elements that are located within 0.5 mile of the project:

- FAHCE Implementation (Guadalupe and Other Watersheds)
- D1: Management of Revegetation Projects (Guadalupe and other watersheds)
- D2: Revitalize Stream, Upland, and Wetland Habitat (Guadalupe Watershed)

All other cumulative scenario projects would be located more than 0.5 mile from the Project site, and would not cumulatively contribute to potential aesthetics impacts associated with the Project. All of the projects located or potentially located within 0.5 mile of the Project site would have construction / implementation schedules that would overlap with the Project. However, none of these cumulative scenario projects is anticipated to include substantial changes to aesthetics conditions in the Project vicinity. Specifically, the 10-Year Pipeline Rehabilitation would result in only short term, temporary construction related disturbances, that would be limited in extent to the pipeline route. Repair of the Almaden Valley Pipeline, if needed, would be discrete from the Project, temporary, and limited in extent, and therefore would not combine with the Project related visual impacts. The Almaden Lake Park upgrade would add recreation equipment in the vicinity of existing equipment, and would appear similar to existing facilities, a significant unavoidable impact. Once construction is completed, it is expected that aesthetics related impacts associated with these activities would be minimized. Implementation of the conservation, revegetation, and stream / upland / wetland habitat revitalization projects would be expected to result in either no change or a net beneficial effect on aesthetic conditions in the Project vicinity, wherein restoration of these areas would enhance the aesthetic characteristics and function of natural areas. Therefore, the Projects identified in Table 1 are not anticipated to result in a significant cumulative impact, during construction or operation. However, the Project's contribution to significant cumulative aesthetic resources impacts is cumulatively considerable impact.

Mitigation Measures

None available.

Agriculture and Forestry Resources

Impact 5.B: Cumulative effects on agriculture resources during construction. (Less than Significant).

For agriculture resources impacts, the geographic scope of potential cumulative impacts includes the Project area and its immediate vicinity, defined as being located within 0.5 mile of the Project site.

The Project would not convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland); and would not would not impact any nearby agricultural use such as the commercial nursery or designated Grazing Land given the distance of those agricultural uses from the Project, and because none of the Project construction and operational requirements would affect use of those areas for agricultural use. Further, the Project would not affect the zoning designation of land currently zoned for agriculture, but not currently under agricultural use. With the exception of the Stream Maintenance Program, listed in Table 5-1, all of the cumulative projects are located more than 0.5 mile from the Program. The District's Stream Maintenance Program entails maintenance activities on the District's existing facilities. Because the Project and the cumulative projects would not affect areas currently under agricultural use, there would not be a significant cumulative effect to agricultural resources. Therefore, cumulative impacts associated with the Project would be less than significant.

Mitigation Measures

None required.

Air Quality

Impact 5.C: Cumulative emissions of air pollutants. (Less than Significant with Mitigation)

Criteria Pollutants (Less than Significant with Mitigation)

The geographic scope of potential cumulative air quality impacts encompasses the immediate Project vicinity for particulates and the San Francisco Bay Area Air Basin (SFBAAB) for criteria pollutants and their precursors. Any proposed project that would individually have a significant air quality impact would also be considered to have a significant cumulative air quality impact. Cumulative impacts could occur if implementation of the Project and the projects listed in Table 5-1 resulted in increased construction emissions that violated air quality standards, contributed substantially to the regions non-attainment status for ozone and particulate matter, or exposed sensitive receptors to pollutants.

Impact 3.C-2 describes the cumulative impact that would be associated with construction and operational emissions of criteria pollutants of the Project. The proposed Project and other projects in the region, including those listed in Table 5-1, would result in emissions of criteria pollutants, which would be a significant impact. As concluded under Impact 3.C-2, the impact from construction-related criteria pollutant emissions would be less than significant, with the exception of for nitrogen oxides (NO_x), for which the impact would be reduced to a less than significant level with implementation of **Mitigation Measures 3.C-1a and 3.C-1b**. In addition, operation of the Project would result in negligible long-term criteria pollutant emissions from occasional worker vehicle trips to the Project site. Therefore, the Project would result in a cumulatively considerable net increase in NO_x pre-mitigation, but this impact would not be cumulatively considerable post-mitigation.

Toxic Air Contaminants (Less than Significant)

To evaluate cumulative impacts associated with sensitive receptor exposure to substantial pollutant concentrations, all toxic air contaminants (TAC) and $PM_{2.5}$ exhaust stationary and mobile sources within a 0.25-mile radius of the maximally exposed individual (MEI) were identified per Bay Area Air Quality Management District (BAAQMD) guidance for a complex source. According to the City of San José's Planning Division, there is currently one other construction project that would include installation of new park equipment at the existing Park on the corner of Almaden Expressway and Coleman Road that would occur in this radius during the Project's construction. Using the BAAQMD's Health Risk Screening and Distance Multiplier Tools, two existing TAC sources (one stationary source and one roadway) within the 0.25-mile radius were identified and their cancer and non-cancer chronic risks and annual average $PM_{2.5}$ concentrations were calculated and included in **Table 5-3**. Refer to Appendix B for the detailed calculations and methods to derive these values.

TABLE 5-3
CUMULATIVE PROJECT HEALTH RISK ASSESSMENT RESULTS[a]

Source	Health Risks at the MEI		
	Cancer Risk[b]	**$PM_{2.5}$[c]**	**Chronic HI[d]**
Proposed Project	48.4 (unmitigated) 5.1 (mitigated)	0.22 (unmitigated) 0.03 (mitigated)	0.15 (unmitigated) <0.01 (mitigated)
City of San José Park Improvements at Coleman Road and Almaden Expressway	≤5.1	≤0.03	≤0.01
Santa Clara Valley Water District FID: 1961; Plant No.: 18379	1.9	<0.01	0.01
Coleman Road	2.1	0.05	N/A
Cumulative	≤57.2	≤0.31	≤0.17
BAAQMD Cumulative Thresholds of Significance	**100**	**0.8**	**10.0**
Exceeds Threshold?	*No*	*No*	*No*

NOTE: Refer to Appendix B (Health Risk Assessment)

a The results represent the cumulative health risks associated with the Project and all other sources of TAC and $PM_{2.5}$ emissions within a 0.25-mile radius of the Project. The Chronic Hazard Index (HI) for Coleman Road is not available (N/A).
b Chances in 1 million.
c Concentrations are expressed as micrograms per cubic meter (μg/m^3).
d Hazard indices (HI) are dimensionless.

Table 5-3 presents the cumulative health risk assessment results for the mitigated Project's construction period. Based on the assessment methods described above, the Project combined with other cumulative sources is below the cumulative thresholds established by the BAAQMD; therefore, the Project would have a less than considerable contribution to toxic air contaminants. Based on Project related emissions, mitigation measures are proposed to reduce the emission of NO_x and dust ($PM_{2.5}$). With implementation of **Mitigation Measures 3.C-1a and 3.C-1b**, the exposure to the MEI would be further reduced to an incremental cancer risk of up to 14.2 in 1 million. The annual average $PM_{2.5}$ concentration at the MEI would be up to 0.12 micrograms per cubic meter (μg/m^3), and the chronic non-cancer hazard index would be no more than 0.03. With regard to operations, the Project would result in negligible TAC emissions from occasional worker vehicle trips that would not be cumulatively considerable. The long-term cumulative impact on sensitive receptors would be less than significant.

As discussed under Impact 3.C-4 in Section 3.C, Air Quality, construction of the Project would cause a less than significant impact related to the generation of odors from diesel equipment emissions because construction activities would be spatially dispersed, and associated odors would dissipate quickly. In addition, any odors associated with the decay of organic materials exposed on the lake bottom during construction are not anticipated to result in substantial emission of odors, because water levels would be drawn down below the organic layer on the lake bottom, allowing sediments to partially dry out, rather than stagnate and generate odors. Long-term operation of the Project would result in no odors. There is no existing adverse cumulative condition related to odors to which the Project could contribute. Projects identified in Table 5-1 in the cumulative scenario are not expected to cause diesel-related odors that would intermingle with those of the Project and, thereby, cause a significant cumulative effect. The cumulative impact would be less than significant.

Mitigation Measures

> **Mitigation Measure 3.C-1a: *U.S. EPA Tier 4 Engines.*** The District shall implement Mitigation Measure 3.C-1a.
>
> **Mitigation Measure 3.C-1b: *BAAQMD Basic Construction Mitigation Measures*.** The District shall implement Mitigation Measure 3.C-1b.

Impact Significance after Mitigation. Less than Significant. The cumulative impacts from construction-related NO_x on regional air quality and TAC emissions on sensitive receptors would be reduced to less than cumulatively considerable and less than significant levels with implementation of Mitigation Measures 3.C-1a and 3.C-1b.

Biological Resources

Impact 5.D: Cumulative loss of sensitive biological resources during construction and operations. (Less than Significant with Mitigation)

The geographic scope of potential biological resources encompasses the jurisdictional waters, and habitats for special-status species within the Project area as well as biologically linked areas in the Guadalupe Watershed. This regional approach is appropriate because the habitats and wildlife species that could be affected by the Project and by the projects identified in Table 5-1 are part of a broader ecosystem, and the potential disturbance of individual areas could have repercussions for a wider region than the immediate Project vicinity.

As discussed in Section 3.D, Biological Resources, the Project could adversely affect special-status birds or nesting migratory birds and raptors in the Project area, including tricolored blackbird, nesting colonies of herons and egrets, Cooper's hawk, and other nesting migratory birds and raptors, as well as roosting bats. Implementation of the mitigation measures applied in Section 3.D (i.e., **Mitigation Measure 3.D-1a and 3.D-1b**) would minimize potential direct impacts. The projects listed in Table 5-1 could also have the potential to affect these species, especially those projects that would directly affect waterways and riparian areas within the Guadalupe Watershed. These would include the Upper Guadalupe River Flood Protection Project, Almaden Dam Improvements, Calero and Guadalupe Dams Seismic Retrofits, FAHCE Implementation, Management of Revegetation Projects, and Revitalize Stream, Upland, and Wetland Habitat. These could result in similar effects as the Project. However, each of these projects would be required to complete CEQA analysis similar to that completed for the Project, but it unknown whether the CEQA process would identify and mitigate potential raptor and migratory bird related impacts associated with those projects Impacts on nesting birds and bats would be cumulatively considerable pre-mitigation, but less than cumulatively considerable with adherence to Mitigation Measures 3.D-1a and 3.D-1b.

As discussed in Section 3.D, Biological Resources, the Project would comply with the Santa Clara Valley Habitat Plan (SCVHP) which is designed to minimize impacts to sensitive habitats used by special-status species including California red-legged frog, foothill yellow legged frog, and western pond turtle. Projects that would directly affect waterways within the Guadalupe Watershed include the Upper Guadalupe River Flood Protection Project, Almaden Dam Improvements, Calero and Guadalupe Dams Seismic Retrofits, FAHCE Implementation, Management of Revegetation Projects, and Revitalize Stream, Upland, and Wetland Habitat. These could result in similar effects as the Project. However, each of these projects would be required to complete CEQA analysis similar to that completed for the Project, and most of these projects would also be subject to conditions of the SCVHP. Adherence to such conditions would ensure that cumulative scenario projects would not combine to result in a cumulatively significant impact.

Also discussed in Section 3.D, the Project would result in a temporary impact to riparian community and jurisdictional wetlands and waters that are located within or along the waterways of the Guadalupe Watershed. Implementation of avoidance and minimization measures contained in the District's Best Management Practices (BMP) Handbook (SCVWD, 2014), such as District BMPs: HM-8: Ensure Proper Vehicle and Equipment Fueling and Maintenance, and WQ-9: Use Seeding for Erosion Control, Weed Suppression, and Site Improvement would minimize temporary impacts on riparian habitat and jurisdictional waters, respectively. Additionally, District BMPs focusing on management of fill, restoration criteria for streams, preservation of water quality, management of erosion and sedimentation, weed suppression, and avoidance measures would minimize direct impacts. Furthermore, Project design overall would replace existing, low-quality lacustrine habitat with higher quality riparian, stream, and wetland habitat. In addition, as discussed in Section 2.E, the outlet pipeline would cross under Guadalupe Creek using horizontal directional drilling to install the pipeline beneath the creek. This would allow the bore pits to be located outside the riparian corridor and Project construction would not impact the Guadalupe Creek riparian corridor. While some of the projects listed in Table 5-1 could also have the potential to affect these habitats – namely those listed previously that would directly affect waterways in the Guadalupe Watershed – the Project would not meaningfully contribute to a cumulative impact on riparian community or jurisdictional wetlands and waters. Therefore, this impact would be less than significant.

As described in Section 3.D, Biological Resources, the Project area is generally surrounded by built uses, which blocks terrestrial wildlife migration under existing conditions. The Project, however, would enhance and restore habitat connectivity along the segment of the Guadalupe Watershed within the Project area, and therefore would provide a net benefit to movement corridors for wildlife. Therefore, residual impacts from the Project would not combine with other cumulative scenario Project impacts, and this impact is considered less than significant.

The Project could conflict with local policies or ordinances protecting trees; however, as discussed for direct impacts in Section 3.D, adherence to **Mitigation Measure 3.D-6** would ensure that tree protection measures would be implemented under the Project to protect trees and ensure compliance with applicable ordinances and policies. In addition to promoting the health, safety, and welfare of the city by regulating the planting, removal and maintenance of the community forest, pursuant to the Community Forest Master Plan and the City of San José Tree Policy Manual & Best Management Practices. Although the Project's pre-mitigation impacts are cumulatively considerable because other cumulative scenario projects may have similar impacts on trees, post-mitigation this impact would not be cumulatively considerable. Therefore, this impact is considered less than significant.

Mitigation Measures

Mitigation Measure 3.D-1a: ***Nesting Bird Protection Measures*.** The District shall implement Mitigation Measure 3.D-1b.

Mitigation Measure 3.D-1b: ***Protective Measures for Bats.*** The District shall implement Mitigation Measure 3.D-2.

Mitigation Measure 3.D-6: ***Tree Protection Measures.*** The District shall implement Mitigation Measure 3.D-3.

Impact Significance after Mitigation: Less than Significant with Mitigation. The impacts to Biological Resources from the Project considered together with past, present, and reasonably foreseeable future projects would be reduced to a less than significant level with implementation of Mitigation Measures 3.D-1a, 3.D-1b, and 3.D-6.

Fisheries Resources

Impact 5.E: Cumulative loss of special-status native fish species and their aquatic habitat during construction and operations. (Less than Significant with Mitigation)

The geographic scope of potential fisheries resources encompasses the waterways of the Guadalupe Watershed. This regional approach is appropriate because the habitats and wildlife species that could be affected by the Project and by the projects identified in Table 5-1 are part of a broader aquatic ecosystem, and the potential disturbance of individual areas of the watershed could have repercussions for a wider region than the immediate Project vicinity.

As discussed in Section 3.E, Fisheries Resources, direct impacts of the Project would include impacts on special-status native fish species and their aquatic habitat during Project construction. Potential categories of impact, as discussed therein, could include direct impacts to fish, water quality and sediment quality impacts, underwater noise impacts, and alteration of benthic habitat. Construction related direct impacts would be significant, but minimized through the implementation of native fish relocation measures (**Mitigation Measure 3.E-1a**). Operation of the Project would result in a substantial net benefit to native fish species thanks to the proposed restoration activities, which would revitalize lotic fish habitat in the Project area. Cumulative scenario projects identified in Table 5-1 could include limited work along rivers, but would not include large scale alteration of waterways that would be expected to meaningfully affect native fish species. Therefore, and because the Project would result in strong long term benefits to fish habitat, impacts of the Project would not be expected to combine with other cumulative scenario project impacts, and therefore would not be cumulatively considerable. This impact is considered less than significant.

Under existing conditions, Almaden Lake represents a substantial barrier to fish migration, caused by entrainment and predation of migrating native fish within the lake. Project construction could temporarily interfere with fish migration during the non-migratory season. Other projects in the watershed that would have the potential to interfere with fish migration and that could be active during the same construction period (Upper Guadalupe River Flood Protection Project and Revitalize Stream, Upland, and Wetland Habitat) may implement fish management measures to ensure passage during migration seasons, in compliance with Endangered Species Act and CEQA mitigation requirements, but because such measures are currently unknown, conservatively, cumulative scenario projects would combine to result in a cumulatively significant impact. The Project's contribution to this impact would be cumulatively considerable, but rendered less than cumulatively considerable with implementation of **Mitigation Measure** 3.E-1a.

During operations, the Project would result in improved fish migration, by removing Almaden Lake as an existing barrier to fish passage. FAHCE implementation, Impaired Water Bodies Improvement, Management of Revegetation Projects, and Revitalize Stream, Upland and Wetland Habitats all have stewardship components that are designed to improve flow and habitat conditions that would benefit fisheries.

Finally, as discussed in Section 3.E, the Project would result in a less than significant impact with respect to potential conflict with local policies or ordinances protecting fisheries resources, or other applicable conservation plans. Because the Project would not conflict with these plans, the Project would not include any residual impacts that could combine with other impacts from cumulative scenario projects. Therefore, this impact would not be cumulatively considerable, and would be less than significant.

Mitigation Measures

> **Mitigation Measure 3.E-1a: *Native Fish Capture and Relocation.*** The District shall implement Mitigation Measure 3.E-1a.

Impact Significance after Mitigation: Less than Significant with Mitigation. The impacts to Fisheries Resources from the Project considered together with past, present, and reasonably foreseeable probable future projects would be reduced to a less than significant level with implementation of Mitigation Measure 3.E-1a.

Cultural Resources and Tribal Cultural Resources

Impact 5.F: Cumulative increase in impacts on archaeological, historical resources, and tribal cultural resources. (Less than Significant with Mitigation)

The geographic scope of potential cumulative impacts on cultural resources encompasses the archaeological and architectural area of potential effects (APE) for the Project area and its immediate vicinity. The Project would contribute to cumulative impacts on cultural resources, including historical, archeological, and paleontological resources if the project and other cumulative scenario projects listed in Table 5-1 were to adversely affect the same historical or cultural resources, within the Project area and immediate vicinity.

As discussed in Section 3.F, Cultural Resources, while several prehistoric archaeological sites and one historic site have been identified in the general vicinity of Almaden Lake, none of these sites were found to be within the APE. Therefore, as discussed in Section 3.F, the Project would not interfere with these sites, and would not contribute to a cumulative scenario impact to known cultural resources or historic sites.

The Project has the potential for discovery of unknown historical resources and unknown archaeological resources although no archaeological sites were identified by records search or found during surface surveys. This impact would be significant. Implementation of Mitigation Measure 3.F-1b, Accidental Discovery of Archaeological Artifacts, Tribal Cultural Resources, or Burial Remains, would minimize potential impacts on unknown archaeological resources and human remains for all proposed Project elements. Most of the projects listed in Table 5-1 would likely involve ground disturbing activities and could encounter previously undiscovered archaeological resources during construction. Most of the Projects listed in Table 5-1 would not include activity within the Project APE. For those projects that could include activity within the Project APE (FAHCE Implementation; Management of Revegetation Projects; and Revitalize Stream, Upland, and Wetland Habitat), mitigation and avoidance strategies and management practices similar to **Mitigation Measure 3.F-1b** might be employed, but are currently unknown. Therefore, cumulative impacts would be significant and the Project's contribution would be cumulatively considerable pre-mitigation. Adherence to Mitigation Measure 3.F-1b, would assure that the Project would not meaningfully contribute to a cumulatively significant impact on cultural resources or tribal cultural resources.

Mitigation Measures

> **Mitigation Measure 3.F-1a: *Preconstruction Training and Cultural Resource Monitoring*.** The District shall implement Mitigation Measure 3.F-1a.
>
> **Mitigation Measure 3.F-1b: *Accidental Discovery of Archaeological Artifacts or Burial Remains*.** The District shall implement Mitigation Measure 3.F-1b.

Impact Significance after Mitigation: Less than Significant with Mitigation. The impacts to Cultural Resources from the Project considered together with past, present, and reasonably foreseeable future projects would be reduced to a less than significant level with implementation of Mitigation Measures 3.F-1a and 3.F-1b.

Energy

Impact 5.G: Cumulative environmental impacts due to wasteful, inefficient, or unnecessary consumption of energy resources. (Less than Significant with Mitigation)

The geographic scope of potential cumulative impacts associated with energy resources encompasses projects located within a 5-mile radius of the Project site. Potential cumulative impacts related to regional and local energy supplies and requirements are evaluated on a regional basis.

Construction of the Project in combination with the other projects in the region, including those listed in Table 5-1 would require the operation of construction equipment during excavation, grading, and materials hauling and could contribute to the regional use of petroleum-based fuels, or fossil fuels. Therefore, cumulative scenario effects on energy resources related to fuel consumption during construction would be significant, and the Project's contribution would be cumulatively considerable. If the cumulative scenario projects listed in Table 5-1 and the Project were to use energy resources in a wasteful, inefficient, or unnecessary manner, or be designed to increase dependency on non-renewable energy resources, it would conflict with state and local energy standards. Although each of the cumulative scenario projects listed in Table 5-1 would result in fossil fuel consumption during construction, these increases in demand would be temporary, and only directly associated with the proposed construction activities of each identified project. These construction activities could result in wasteful or inefficient use of energy fuels by using large amounts of fuel or energy over time which would be a significant impact. However, with the implementation of **Mitigation Measure 3.C-1b (BAAQMD Basic Construction Mitigation Measures)**, construction equipment would be well maintained and properly tuned, and would limit equipment and vehicle idling, thus conducting construction activities in a fuel-efficient manner.

Therefore, post-mitigation the Project is not expected to contribute to a cumulatively considerable impact related to the wasteful, inefficient, or unnecessary consumption of petroleum-based, fossil fuel energy, and this cumulative impact would be less than significant.

The amount of electricity used for Project construction would be minimal, and would be limited to intermittent use of pumps to draw down or maintain low water levels in the lake. During Project operations, the amount of electricity required (ongoing pump operation) would amount to up to approximately 1,450 kWh per day, assuming both pumps operating at capacity. During most days, pumps would operate below capacity. This amount of electrical power is negligible when compared to the amount of electricity consumed in Santa Clara on an annual basis (i.e., 17,190 GWh in 2017). Therefore, the Project is not expected to contribute to a cumulatively considerable impact related to the wasteful, inefficient, or unnecessary consumption of electricity, and this cumulative impact would be less than significant.

The Project would not include the development or demolition of any buildings. Therefore, there would be no cumulative impact related to compliance with applicable energy and energy efficiency/conservation standards or codes, such as the California Building Standards or California Energy Code. Furthermore, like the Project, these cumulative scenario projects would not be designed or reasonably expected to increase reliance on fossil based energy; they would utilize blended fossil / renewable fuels typically sold in California, in accordance with the state Renewable Portfolio Standard requirements, and therefore would conform to applicable renewable energy plans.

Mitigation Measures

> **Mitigation Measure 3.C-1b:** ***BAAQMD Basic Construction Mitigation Measures.*** The District shall implement Mitigation Measure 3.C-1b.

Impact Significance after Mitigation: The impacts to Energy from the Project considered together with past, present, and reasonably foreseeable future projects would be reduced to a less than significant level with implementation of Mitigation Measure 3.C-1b.

Geology and Soils

Impact 5.H: Cumulative exposure of people or structures to geologic and seismic hazards. (Less than Significant)

The geographic scope of potential cumulative geologic and seismic impacts encompasses the San Francisco Bay Area region. Although many of the projects listed in Table 5-1 could have similar geologic impacts as the proposed Project, geologic and seismic impacts are generally site specific and depend on local geologic and soil conditions. All projects in the entire Bay Area region could expose additional people and structures to potentially adverse effects associated with earthquakes including seismic ground shaking and seismic related ground failure. However, site-specific geotechnical studies required by local building departments would determine how future projects could be designed to minimize exposure of people to these impacts. Therefore, future development would be constructed to more current standards which could potentially provide greater protection than those of older structures throughout the region. Other current and future projects within the Bay Area region would also be required to adhere to current building standards with seismic design criteria that incorporates the most current science and understanding of geotechnical and seismic hazards such that damage or injury would be minimized.

As described in Section 3.H, Geology and Soils, potential geologic and seismic impacts associated with implementation of the Project could include fault rupture, ground-shaking effects and secondary ground-shaking effects (primarily liquefaction) (Impact 3.H-1). Fault rupture hazards are site specific and primarily depend on proximity to active fault zones within the region. As a result, projects do not combine to become cumulatively considerable. Ground shaking and liquefaction hazards are also dependent on site specific factors including distance to epicenter, duration of ground shaking, engineering characteristics of underlying materials and others. Regardless, all current and future construction would follow current engineering practices in accordance with building code requirements that minimize ground shaking hazards to less than significant levels. As indicated in the geotechnical investigation conducted for the proposed project, recommendations were made for the Project to address the identified liquefiable soils present. Liquefaction hazards are fully dependent on the site specific characteristics of underlying materials which can vary widely over short distances. Because of the this, the Project would not combine with other cumulative projects to become cumulatively considerable.

Construction and operation activities associated with all project elements are not anticipated to occur in areas susceptible to slope failures or in designated landslide zones due to the local topography of the Project area and due to the nature of the proposed improvements. Projects listed in Table 5-1 would occur within the general vicinity of the Project and would therefore not be anticipated to occur in areas susceptible to slope failures or in designated landslide zones. Therefore, the Project’s contribution to cumulative impacts related to landslides, lateral spreading, subsidence or collapse would not be cumulatively considerable and would be less than significant.

Regarding soil erosion, development activities including construction could lead to increased erosion rates on site soils, which could cause unstable ground surfaces and result in eventual damage to roads, foundations and other improvements. Construction activities at the Project site would be similar to other current and future projects greater than 1 acre in size are required to comply with the National Pollution Discharge Elimination System (NPDES) Construction General Permit which contain erosion control requirements that would minimize the potential for erosion. The NPDES program requires the preparation and implementation of Stormwater Pollution Prevention Programs for construction activities that include Best Management Practices that ensure erosion control measures are included during construction. The Project would be required to comply with these regulations, as would other nearby past, present, and reasonably foreseeable development projects. Therefore, the proposed Project in conjunction with other nearby cumulative development would not have a cumulatively significant impact associated with erosion.

In addition, the Project as well as all the other current and future cumulative projects are required to adhere to building code requirements that address all geologic hazards. The California Building Code requires that a geotechnical investigation be prepared by a California licensed geotechnical engineer or engineering geologist and provide recommendations that minimize any identified hazards present onsite. Implementation of these recommendations in accordance with building code and U.S. Army Corps of Engineers requirements, as applicable, would reduce geologic hazards such that they would not be cumulatively considerable and would be less than significant.

Mitigation Measures

None required.

Greenhouse Gas Emissions

Impact 5.I: Cumulative effects related to greenhouse gas emissions. (Less than Significant)

The geographic scope of potential cumulative greenhouse gas (GHG) emissions, while technically global, is considered in regional and statewide terms for practical purposes. The Project's GHG emissions would contribute to cumulative climate change effects, as described under Impact 3.I-1.

As discussed in Section 3.I, Greenhouse Gases, an estimated 5,535 metric tons of carbon dioxide equivalent (CO_2e) emissions from Project-level construction activities would be emitted over the course of the 24-month construction period. This calculation includes CO_2e GHG emissions from off-road equipment, trucks, railroad hauling, and workers during construction, and worker trips. The total estimated annual operation and maintenance emissions that would be associated with the Project are approximately 70 metric tons CO_2e associated with direct GHG emissions from one truck trip every two weeks to maintain the new landscaping and indirect GHG emissions from an electric pump station that is conservatively assumed to run continuously (detailed in Appendix B).

These emissions would not exceed the BAAQMD adopted GHG significance threshold for projects other than stationary sources (1,100 metric tons/year of CO_2e). As stated in Section 3.I, when compared to regional and statewide GHG emissions, as well as the adopted BAAQMD significance thresholds for GHGs, the Project's GHG emissions would meet the State goals outlined in Assembly Bill (AB) 32 and other applicable GHG reduction plans, policies and regulations. All of the projects listed in Table 5-1 would also be subject to the same regional and statewide GHG regulations. It should be noted that GHG impacts are considered to be exclusively cumulative impacts; there are no non-cumulative GHG emission impacts (i.e., impacts associated with a specific project only) from a climate change perspective. Therefore, cumulative impacts related to the increase in GHG emissions and potential conflicts with GHG reduction plans, policies and regulations would be less than significant, and the Project's contribution would not be cumulatively considerable.

Mitigation Measures

None required.

Hazards and Hazardous Materials

Impact 5.J: Cumulative effects related to hazardous conditions and exposure to or release of hazardous materials. (Less than Significant)

The geographic scope of potential cumulative hazards and hazardous materials impacts encompasses the Project area and immediate vicinity. Hazards and hazardous materials impacts are generally site-specific and depend on past, present, and future uses, as well as existing soil, sediment, and groundwater conditions. The FAHCE Implementation / Three Creeks Conservation Plan, Management of Revegetation Projects, and the Revitalize Stream, Upland, and Wetland Habitat projects potentially include elements that could be located within the same footprint as the Project.

As described in Section 3.J, Hazards and Hazardous Materials, direct project impacts would include those associated with handling mercury-containing bottom sediments from Almaden Lake. The potential for encountering hazardous levels of mercury in other parts of the Project area, for example, in shoreline soil, is limited, based on the results of soil chemical analyses reviewed in Section 3.J. The Project site does not contain any other known sources of hazardous materials, and outside of the lake bottom, the potential for encounter of hazardous levels of mercury is not anticipated. Additionally, implementation avoidance and minimization measures from the District's BMP Handbook (SCVWD, 2014), including District BMP HM-9 Ensure Proper Hazardous Materials Management and HM-11 Ensure Worker Safety in Areas with High Mercury Levels, would address the potential hazard of encountering previously unknown hazardous materials, including mercury, throughout the Project site. The Management of Revegetation and Revitalize Stream, Upland, and Wetland Habitat projects are both District projects, and therefore would also implement District BMPs HM-9 and HM-11 to minimize potential impacts related to hazardous materials. It is also assumed that the FAHCE Implementation project would require similar mitigation measures to reduce potential exposure of hazardous materials.

As described in Section 3.J, hazardous materials would be transported routinely to and from the Project area during construction, including during the export of mercury-laden sediments from the lake bottom. District BMP HM-9 Ensure Proper Hazardous Materials Management would be implemented during construction to minimize impacts associated with the accidental release of hazardous materials. As discussed previously, Management of Revegetation Projects and Revitalize Stream, Upland, and Wetland Habitat projects would both be deployed by the District, and therefore would both implement District BMP HM-9 to minimize impacts related to the transport of hazardous materials. It is also assumed that the FAHCE Implementation project would require similar measures to reduce potential for accidental release of hazardous materials.

With respect to interference with emergency response, as discussed in Section 3.J, Project construction would only include construction activities for up to approximately 2 weeks along a public roadway (Winfield Blvd.). However, at least one lane would remain open at all times, minimizing direct impacts. With respect to cumulative scenario projects, the three cumulative scenario projects identified above as being potentially located within the Project area, would not include any construction in roadways. These projects would be deployed in riparian corridors, wetlands, streams, and other off-road areas, that are not used for emergency response operations. Therefore, none of the three applicable cumulative scenario projects would interfere with emergency response. Therefore, cumulative scenario impacts related to hazards and hazardous materials are expected to be limited, and the Project would not contribute to a cumulative scenario impact. Therefore, cumulative hazards and hazardous materials impacts would not be significant, and the Project's contribution would not be cumulatively considerable. This impact would be less than significant.

Mitigation Measures

None required.

Hydrology and Water Quality

Impact 5.K: Cumulative impacts related to the degradation of surface or groundwater quality, conflict with the Basin Plan, depletion of groundwater resources, alteration of drainage patterns or addition of impervious surfaces in a manner which would cause erosion or siltation, substantially increase runoff, cause flooding, exceed stormwater systems, or impede or redirect flood flows. (Less than Significant with Mitigation)

The geographic scope of potential cumulative hydrology and water quality impacts generally encompasses the Guadalupe River watershed, which includes the Project site as well as areas upstream and downstream of the Project site, and including underlying groundwater in the Santa Clara groundwater sub-basin.

As described in Section 3.K, Hydrology and Water Quality, the Project has the potential to degrade water quality as a result of construction-related soil erosion and accidental discharges of hazardous materials into downstream water bodies. However, Project construction impacts on water quality would be minimized via adherence to the requirements of the Construction General Stormwater Permit, as well as implementation of avoidance and minimization measures from the District's BMP Handbook (SCVWD, 2014). While most of the other cumulative scenario projects summarized in Table 5-1 would not implement District BMPs, all substantially sized projects (over one half acre) would also be required to adhere to the requirements of the Construction General Stormwater Permit. Conditions of this permit are tailored to each project, in order to be sufficient to maintain beneficial use within the affected watershed. Therefore, adherence to the conditions of this required permit would ensure that potential water quality degradation would not interfere with applicable beneficial uses, and therefore would not result in cumulatively considerable construction period water quality degradation.

As part of the construction process, Almaden Lake would be drained to allow access to the lake bottom. When the lake is drawn down to near bottom, potential mixing of waters with bottom sediments could result in the release of increased sediment loads. Lake bottom sediments are known to contain high concentrations of mercury. In addition, after drawdown of the lake is complete, groundwater dewatering may be required to establish and maintain a dry lake bed to provide a working surface for the construction equipment which could release sediment, mercury, and other potential water quality pollutants to downstream areas. Releases of water containing elevated concentrations of sediment containing elevated mercury levels, in combination with historic mining activities in the watershed, could result in a cumulatively considerable contribution related to downstream water quality degradation. The Project's contribution to this impact would be rendered less than cumulatively considerable with implementation of **Mitigation Measure 3.K-1**, which would minimize the release of sediment and/or mercury-laden sediment downstream.

During operations, as discussed for direct impacts, the Project would have a net beneficial effect on the target water quality constituents identified for the Project. Therefore, for these constituents, including mercury, methylmercury, algae concentrations and phytoplankton blooms, nitrogen, phosphorous, and dissolved oxygen, the Project would not contribute to a cumulatively considerable degradation in water quality during operations. The Project would also hydrologically disconnect Almaden Lake from the remaining watershed, because water to feed the lake would be sourced from the Almaden Valley Pipeline, while the lake outfall would be used for groundwater recharge. Therefore, the Project would remove the lake as a contributor of degraded water quality to the watershed, and is expected to help alleviate any existing potentially cumulatively considerable water quality scenarios along the lower watershed, as relevant to the target constituents identified above. Moreover, the Project would remove a very large source of mercury and methylmercury to the watershed. By capping mercury-contaminated bottom sediments and isolating the lake from the watershed, the Project would ensure removal of what is presently the most highly polluted lake in California, with respect to methylmercury, from the Guadalupe River watershed. Therefore, operation of the Project would result in a net beneficial impact on water quality, especially with respect to mercury and methylmercury. Residual operation period water quality impacts of the Project would not combine with those of other cumulative scenario projects.

With respect to groundwater, Project construction would result in temporary and localized drawdown of shallow groundwater levels in and immediately adjacent to the Project area. Because drawdown would be limited in geographic extent, and because other projects in the immediate vicinity of the project (i.e., FAHCE Implementation; Management of Revegetation Projects; and Revitalize Stream, Upland, and Wetland Habitat) would not include groundwater dewatering or other mechanisms that could contribute to groundwater drawdown, no cumulatively considerable construction period reduction in groundwater levels is anticipated in the Project vicinity. During operation, as discussed in Section 3.K, the Project would not rely on groundwater for supply. Operation of the Project would support groundwater recharge operations for the District, and could result in greater flexibility in delivering water to the Alamitos Percolation Pond. By improving water quality in Almaden Lake, as discussed previously, the Project would further improve groundwater quality by reducing the amount of water quality pollutants in recharged groundwater. Therefore, the Project would not result in a reduction in groundwater levels during operation, and would not contribute to a cumulative scenario reduction in groundwater levels or in groundwater quality.

As discussed in Section 3.K, Hydrology and Water Quality, the Project would result in altered drainage patterns during construction, which could result in increased erosion or sedimentation downstream. However, during the construction period, stormwater in the Project area would be managed in accordance with the requirements of the Construction General Permit. Conditions of that permit would be set by the RWQCB. As discussed for direct impacts, the BMPs implemented under the Construction General Permit would be sufficient to minimize the release of water quality pollutants offsite. Additionally, the RWQCB is mandated to deploy BMPs to the extent needed to wholly ensure downstream beneficial uses are protected, even when considering discharges from multiple construction sites operating in accordance with the Construction General Permit. All projects identified in the Guadalupe River Watershed in Table 5-1 would also be required to obtain coverage under the Construction General Permit. Therefore, any residual releases from the Project site would not combine with other similar releases of water quality pollutants, and therefore would not contribute to a cumulative scenario reduction in construction period water quality.

As discussed for direct impacts, the Project would not meaningfully increase impervious surfaces, would not increase stormwater flows generated on site, would not contribute to increased flows downstream, and therefore would not contribute to a cumulatively considerable impact on stormwater volume.

The Project would alter erosion and siltation patterns at the Project site along the proposed creek channel. The restored creek would be designed to minimize erosion or sedimentation. Other cumulative scenario projects could also alter erosion and sedimentation along the Guadalupe River watershed. These would include the Upper Guadalupe River Flood Protection Project, Almaden Dam improvements, Calero and Guadalupe Dams Seismic Retrofits; FAHCE Implementation; and the Revitalize Stream, Upland, and Wetland Habitat (Guadalupe Watershed) project. However, the Project and the cumulative scenario projects that could affect erosion and sedimentation within the Guadalupe River watershed, would likely be designed to r minimize effects on downstream drainage patterns and erosion or siltation, but this is currently unknown. Based on the design of the Project, erosion and sedimentation effects would not be expected to combine with those of other cumulative scenario projects. Cumulative scenario alteration of erosion or siltation would not be cumulatively considerable, and would be less than significant.

As discussed for direct impacts, all drainage infrastructure needed to support the Project would be included in the Project design. The Project would not significantly increase impervious surfaces or otherwise generate additional stormwater, and would not result in an increase in the volume of stormwater discharged from the site. Therefore, the Project would not contribute to any cumulative considerable impact related to drainage infrastructure.

As discussed for direct impacts, the Guadalupe River downstream of Almaden Lake has been designed by the USACE and the District to contain and convey the 100-year flood event without causing flooding of adjacent housing or other development, even in the absence of the existing lake. Therefore, the existing design of the flood control system ensures accounts for the Project, ensuring that flows would pass safely without exceeding existing levees. Impact 3.K-3 discusses flooding impacts that could result if sheet piles used to separate the lake from the channel at the start of construction are not adequately sized. This impact is specific to the site and would not combine with other projects to contribute to cumulative effect related to flooding. Therefore, the Project would not contribute to any cumulatively considerable impact on flooding along the watershed downstream of the Project area.

Mitigation Measures

> **Mitigation Measure 3.K-1: Monitor and Manage the Quality of Lake Discharges to Creek.** The District shall implement Mitigation Measure 3.K-1.

Impact Significance after Mitigation: The impacts to water quality from the Project considered together with past, present, and reasonably foreseeable future projects would be reduced to a less than significant level with implementation of Mitigation Measure 3.K-1.

Noise

Impact 5.L: Cumulative increases in noise and vibration in the Project area. (Less than Significant with Mitigation)

The geographic scope of potential cumulative noise and vibration impacts encompasses the immediate Project area as well as areas adjacent to sensitive receptors that would be affected by the Project and construction access and haul routes that are located near noise-sensitive land uses. As described in Section 3.L, Noise, Project construction activities would contribute to the noise environment in the Project area. Existing residences on the northern, western, and eastern sides of the Project site are located within 500 feet of the proposed construction activities, and therefore have the potential to be adversely affected by Project construction. These residences could be significantly impacted by Project-related construction traffic noise. Implementation of **Mitigation Measure 3.L-1a** would be required to reduce the impact to less than significant and would ensure that the Project would be consistent with applicable standards, ordinances, and the General Plan. In addition, because construction of the Project would exceed the applicable noise threshold criteria associated with off-site traffic if all Project construction traffic would access the site either via the Guadalupe River Trail from Coleman

Road (north of Almaden Lake Village) or Winfield Boulevard (south of Coleman Road) (worst case scenarios), this construction impact would be considered significant. Implementation of Mitigation Measure 3.L-1a would ensure that this impact would be reduced to a less than significant level by restricting all Project-related construction traffic to the site via the Guadalupe River Trail to worker vehicles only (i.e., no haul truck access) and restricting hourly truck trips along Winfield Boulevard, south of Coleman Road, to no more than 70 trips per hour. Other cumulative scenario projects could contribute construction traffic that would lead to significant cumulative traffic noise impacts, but **Mitigation Measure 3.L-1a** would assure the Project's contribution would be less than cumulatively considerable.

With regard to long-term Project operations, the estimated Day-Night Average Level (DNL) from the Project's water pump station at the closest sensitive receptors (residences at Almaden Lake Village) is 61 decibels (dBA) DNL, which would exceed the operational noise threshold of 55 dBA DNL for residential uses and cause a significant impact. However, implementation of **Mitigation Measure 3.L-1b** would result in installation of an enclosure to house the pump station that would reduce pump noise at the nearest residences to below the significance threshold.

Of the projects listed in Table 5-1, only the 10 Year Pipeline Rehabilitation Program and the Almaden Park equipment upgrade would include activities that would be located in the general vicinity of the Project site, with the Almaden Valley Pipeline approximately 0.2 mile from the Project site. Pipeline rehabilitation could be under construction at the same time as the Project, but at a distance of over 1,000 feet from the Project site, any cumulative increase in noise level would not be substantial.

As discussed in Section 3.L, Noise, the Project's construction and operation activities would not produce significant vibration levels that can cause architectural damage to nearby residences, and therefore this impact would be less than significant. None of the projects identified in Table 5-1 would overlap geographically with the Project to the extent that a cumulative increase in vibration levels would occur. Therefore, the Project would not be cumulatively considerable and the cumulative impact would be less than significant.

Mitigation Measures

> **Mitigation Measure 3.L-1a: *Construction Noise Logistics Plan.*** The District shall implement Mitigation Measure 3.L-1a.
>
> **Mitigation Measure 3.L-1b: *Install a Fully Enclosed Pump Station.*** The District shall implement Mitigation Measure 3.L-1b.

Impact Significance after Mitigation: Less than Significant. Implementation of Mitigation Measure 3.L-1a and 3.L-1b would reduce Project noise impacts to a less than significant level and would ensure that the Project's contribution to cumulative noise impacts would not be cumulatively considerable.

Public Services

Impact 5.M: Cumulative effects on public services. (Less than Significant)

The geographic scope of potential cumulative recreation impacts encompasses the Project area and its vicinity, as well as development and other projects within 7 miles (a distance that encompasses several other cumulative projects and public service areas) of the Project site.

As discussed in Section 3.M, Public Services, the Project would result in a temporary increase in needs for public services during construction. However, these needs would be occasional and would not require the need for additional public services, such that new public service facilities would be required. Further, the Project would not include housing or otherwise increase population in the Project area in vicinity, such that new public service facilities could be required. Cumulative scenario projects that could result in additional need for public services during construction include the Upper Guadalupe River Flood Protection Project, Calero and Guadalupe Dams Seismic Retrofits, County of Santa Clara Parks: Hacienda and Deep Gulch Remediation Project (2017-2018), County of Santa Clara Parks: Los Gatos Creek Trail at Vasona County Park (2016-17), San José Parks: Branham Park Enhancements (2017-18), and San José Parks: Del Monte Park Expansion (2017-18). However, similar to the Project, occasional construction need for additional public services would not require the need for new public services facilities. Some cumulative projects do include additional housing and would result in increases in population that could require additional public service facilities. However, the Project would not result in a significant public services impact and would not contribute to a cumulative public services impact. Therefore, the Project would result in a less than significant public services impact.

Mitigation Measures

None required.

Recreation

Impact 5.N: Cumulative effects on recreational resources during construction. (Less than Significant)

The geographic scope of potential cumulative recreation impacts encompasses the Project area and its vicinity, as well as Park and recreational facilities, including parks, trails, and other public recreation facilities, within 7 miles (a distance that encompasses several other public recreational facilities) of the Project site.

As discussed in Section 3.N, Recreation, the Project would result in a temporary restriction of access to Almaden Lake, including restriction of access to the boat rental and boat launch; up to five reservable picnic areas; two open-use picnic areas, segments of Almaden Lake Trail; the beach and adjacent open area; and the amphitheater. These restrictions would remain in place during the 30-month construction period, but would cease upon completion of construction. As discussed for direct impacts, during the 30-month construction period, it is anticipated that local users would utilize other recreational opportunities available at other parks. Cumulative scenario projects that could result in restriction of access to recreational opportunities include the Almaden Park equipment upgrade, the Upper Guadalupe River Flood Protection Project, Calero and Guadalupe Dams Seismic Retrofits, County of Santa Clara Parks: Hacienda and Deep Gulch Remediation Project (2017-2018), County of Santa Clara Parks: Los Gatos Creek Trail at Vasona County Park (2016-17), San José Parks: Branham Park Enhancements (2017-18), and San José Parks: Del Monte Park Expansion (2017-18). Of these, the construction schedules for three projects would overlap in time with the project: Almaden Park equipment upgrade, Upper Guadalupe River Flood Protection Project, and Calero and Guadalupe Dams Seismic Retrofits. Potential for active construction on elements of these projects that would affect access to recreational facilities during the same period as the Project is expected to be limited. Even if closures to recreational facilities were to co-occur with the Project, there are several other parks and recreational facilities in the vicinity that would remain open and unaffected by construction of the Project or of cumulative scenario projects. Therefore, the Project's contribution to cumulative loss of recreational opportunities, or to cumulative increases in use of parks or recreational facilities, would not be cumulatively considerable and would be less than significant.

Mitigation Measures

None required.

Transportation

Impact 5.O: Cumulative traffic increases on local and regional roads. (Less than Significant)

The geographic scope of potential cumulative impacts related to transportation and traffic includes regional facilities (e.g., highways and freeways) and local roads providing access to the Project vicinity. The Project is located entirely within the City of San José, generally including roadways that provide access to the Project site, including SR 85, SR 87, Almaden Expressway, Coleman Road, Winfield Boulevard, Santa Teresa Boulevard, and Blossom Hill Road.

Traffic-related impacts resulting from the Project would be restricted to the two-and-a-half-year construction phase of the Project. Project operation would not impact or alter traffic or transportation, as discussed in Section 3.O, Transportation. As described under Impact 3.O-1, construction period activities would generate a temporary increase in traffic volumes on affected portions of area roadways. As discussed for direct impacts, the Project would most strongly increase traffic volumes along Coleman Road between Almaden Expressway and Winfield Boulevard and on Winfield Boulevard south of Coleman Boulevard, and would result in slight increase in traffic volumes, in comparison to existing conditions. Of the cumulative scenario projects identified in Table 5-1, only Almaden Park facility upgrade, the 10 Year Pipeline Rehabilitation, Management of Revegetation Projects, and Revitalize Stream, Wetland, and Upland Habitat projects would be in close enough proximity to the Project site that their implementation could meaningfully affect traffic volumes along Project-affected roadways, as identified for direct impacts. However, none of these projects would include new residential or commercial development, which could substantially increase traffic volumes. Additionally, none of these projects would include large scale construction activities in close proximity to the Project, such that their construction could meaningfully increase traffic volumes along roadways affected by the Project. Therefore, traffic related impacts of the Project are not expected to combine with impacts from other cumulative scenario projects; this impact would not be cumulatively considerable, and would be less than significant.

The Project would not install new roadway design features and therefore would not contribute to a roadway design related cumulative scenario impact related to increased road hazards. Similarly, Project construction would not introduce new uses (i.e., new types of vehicles) that would be incompatible with existing uses. Therefore, the Project would not contribute to a cumulatively considerable impact related to hazards caused by incompatible use; this impact would be less than significant.

With respect to emergency access, the Project would not require public road closure during construction, nor would it cause a significant increase in congestion on area roadways, that could limit or slow access or passage by emergency vehicles. Therefore, the Project would not contribute to a cumulatively considerable impact relating to emergency access. This impact is considered less than significant.

Finally, as discussed in Section 3.O, the Project would not eliminate or alter existing or planned transportation corridors or facilities, nor would it alter or cause changes to policies or programs that support alternative transportation. Therefore, the Project would not contribute to a cumulatively considerable impact relating to conflict with adopted policies, plans, or programs related to transportation. This impact is considered less than significant.

Mitigation Measures

None required.

Utilities and Service Systems

Impact 5.P: Cumulative impacts related to disruption of utility service or relocation of utilities. (Less than Significant)

The geographic scope of potential impacts on utilities and service systems is limited to the immediate Project vicinity where services could be disrupted and/or where utilities could require relocation. For landfill capacity, the geographic scope includes the service areas where disposal of construction-related waste could occur. For compliance with solid waste statutes and regulations, the geographic area encompasses the City of San José. For water supply, the geographic area encompasses water users in the northern portion of Santa Clara County and the future service area for recycled water supply within the City of San José.

As discussed under Impact 3.P-1, the Project would not require additional facilities to serve the Project and reasonably foreseeable future development during normal, dry and multiple dry years, it would not combine with impacts from other cumulative scenario impacts, and therefore would not result in a cumulatively considerable impact related to water supply. This impact would be less than significant.

With respect to stormwater infrastructure, the majority of stormwater generated on site would be managed on site, within the updated Almaden Lake, or in the restored river corridor. As discussed for direct impacts in Section 3.P, Utilities and Service Systems, the Project would not include substantial new impervious surface areas, and would not result in a net increase in stormwater generation. Therefore, the Project would not contribute to a cumulative scenario impact relating to stormwater utilities.

With respect to solid waste, the Project could require disposal of up hazardous waste that would be disposed of in Kettleman City or in Utah. However, none of the other projects identified in Table 5-1 is anticipated to require disposal of large volumes of hazardous waste, that would be disposed of in either of these landfills. Therefore, the waste disposal impacts of the Project would not combine with waste disposal impacts from other cumulative scenario projects, and would not result in a cumulatively considerable impact on solid waste. Additionally, construction wastes from the Project would be managed in accordance with San José's Construction and Demolition Ordinance, which prohibits construction and demolition materials from being placed in the trash or being sent directly to a landfill. Other cumulative scenario projects in the vicinity of the Project would also be required to adhere to this ordinance, which would minimize the volume of waste landfilled during construction of cumulative scenario projects. Therefore, solid waste related impacts of the Project are not expected to combine with similar impacts from other cumulative scenario projects, and this impact would be less than significant.

Mitigation Measures

None required.

5.D References

Santa Clara Valley Water District (SCVWD). 2014. Best Management Practices (BMP) Handbook. Document No. W-751-037.

CHAPTER 6
Other CEQA Issues

6.A Growth Inducing Impacts

Section 15126.2(e) of the California Environmental Quality Act (CEQA) Guidelines requires that an environmental impact report (EIR) discuss "the ways in which the proposed project could foster economic or population growth, or the construction of additional housing, either directly or indirectly, in the surrounding environment. Included in this are projects which would remove obstacles to population growth (a major expansion of a wastewater treatment plant might, for example, allow for more construction in service areas)… It must not be assumed that growth in any area is necessarily beneficial, detrimental, or of little significance to the environment."

The Almaden Lake Improvement Project (Project) would not directly induce growth because it does not involve the development of new housing or job centers that would attract additional population. Project construction would not extend roads or include other infrastructure that could indirectly induce growth. Given the relatively small size of the construction workforce (shown in Table 2-2 in Chapter 2, Project Description), Project construction would not be expected to induce demand for housing by attracting workers from outside the area, as workers are expected to be drawn from the local labor pool. Long-term operation of the Almaden Lake Improvement Project also would not increase the number of workers employed by the Santa Clara Valley Water District (District) or the City of San José for operation and maintenance activities at Almaden Lake or Alamitos Creek. As described in Chapter 2, Project Description, the purpose of the Project is to separate Alamitos Creek from Almaden Lake, reduce production of methylmercury and mercury in target fish in the lake, and remove potential lake entrainment of anadromous fish, while minimizing impacts to existing recreational features at Almaden Lake Park. The Project would use existing water supplies and would not create or expand a water supply source that could remove water supply limitations as a potential obstacle to growth.

Based on this analysis, the Project would not have a substantial growth-inducing impact, and no mitigation is required.

6.B Significant Unavoidable Impacts

In accordance with Section 21100(b)(2)(A) of CEQA and with Sections 15126(b) and 15126.2(c) of the CEQA Guidelines, the purpose of this section is to identify project-related environmental impacts that could not be eliminated or reduced to a less than significant level with implementation of all feasible mitigation measures, as identified in Chapter 3, Environmental Setting, Impacts, and Mitigation Measures. The findings in this chapter are subject to final determination by the District as part of its certification of the Final EIR.

The Draft EIR identified a temporary significant unavoidable impact to the visual character of the Project area as the lake is drained and construction proceeds for two to three years. This impact would be reduced as restoration planting installed as part of the Project establish after a few years.

6.C Significant Irreversible Environmental Changes Which Would Be Caused by the Proposed Project Should It Be Implemented

CEQA Section 21100(b)(2)(B) and CEQA Guidelines Section 15126.2(d) require that an EIR identify significant irreversible environmental changes caused by implementation of the project. Construction of the Project would indirectly result in the commitment of nonrenewable natural resources used in the construction process. These may include gravel, soils, petroleum products, construction-related chemicals and paints, steel, and other materials. The Project would also result in the commitment of slowly renewable materials, such as wood products. This would not, however, be considered a significant adverse impact.

6.D Mitigation Measures Proposed to Minimize Significant Effects

CEQA Guidelines Section 15126.4 requires that an EIR describe feasible measures which could minimize significant adverse impacts. To this end, mitigation measures are incorporated into the analysis provided in Chapter 3, Environmental Setting, Impacts, and Mitigation Measures of the Draft EIR, and are summarized in the Summary at the beginning of the Draft EIR. Please refer to those sections for additional information.

CHAPTER 7
Draft EIR Preparers

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