Valley Water

DECEMBER 2024

Vasona Pump Station Upgrade Project

Draft Initial Study/Mitigated Negative Declaration

VALLEY WATER PROJECT NO. 92264001

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VASONA PUMP STATION UPGRADE PROJECT

Draft Initial Study/Mitigated Negative Declaration

Project No. 92264001

December 2024

Prepared for:

Santa Clara Valley Water District (Valley Water)
5750 Almaden Expressway
San Jose, California 95118-3614

Prepared by:

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Table of Contents

Page

Page

Page

Page

List of Tables

List of Figures

List of Appendices

List of Acronyms

AB	Assembly Bill
ABAG	Association of Bay Area Governments
AMMs	Avoidance and Minimization Measures
APN	Assessor Parcel Number
APSA	Aboveground Petroleum Storage Act
BAAQMD	Bay Area Air Quality Management District
BMP	Best Management Practice
CAL FIRE	California Department of Forestry and Fire Protection
CalTrans	California Department of Transportation
CalRecycle	California Department of Resources, Recycling, and Recovery
CARB	California Air Resources Board
CCR	California Code of Regulations
CDC	California Department of Conservation
CDFW	California Department of Fish and Wildlife
CEQA	California Environmental Quality Act
CESA	California Endangered Species Act
CFGC	California Fish and Game Code
cfs	cubic feet per second
CGS	California Geological Survey
CH_4	methane
CIWMB	California Integrated Waste Management Board
CO	carbon monoxide
CO_2	carbon dioxide
CO_2E	carbon dioxide equivalents
CNDDB	California Natural Diversity Database
CNPS	California Native Plant Society
CRLF	California red-legged frog
CRPR	California Rare Plant Rank
CUPA	Certified Unified Program Agency
CWA	Clean Water Act
dBA	Decibels on the A-weighted scale
DTSC	California Department of Toxic Substances Control
DWR	Department of Water Resources
EIR	Environmental Impact Report
FEMA	Federal Emergency Management Act
FESA	Federal Endangered Species Act
FTA	Federal Transit Administration
GSA	Groundwater Sustainability Agency
GSP	Groundwater Sustainability Plan
GHGs	greenhouse gases
HCP	Habitat Conservation Plan
HMBP	Hazardous Materials Business Plan
KHz	kilohertz
kW	kilowatt

L_{eq}	equivalent continuous sound level
LOS	level of service
MBTA	Migratory Bird Treaty Act
MND	Mitigated Negative Declaration
MT	million tons
MTC	Metropolitan Transportation Committee
NAHC	Native American Heritage Commission
N_2O	nitrous oxide
NO_x	nitrogen oxides
NPDES	National Pollutant Discharge Elimination System
PM_X	particulate matter, expressed in micrograms per cubic meter ($\mu g/m^3$) to show its concentration in the air
ppm	parts per million
PPV	peak particle velocity
Project	Vasona Pump Station Upgrade Project
RHNA	Regional Housing Needs Assessment
ROGs	reactive organic gases
RWQCB	San Francisco Bay Regional Water Quality Control Board
SB	Senate Bill
SBCWD	San Benito County Water District
SCCFD	Santa Clara County Fire Department
SCVURPPP	Santa Clara Valley Urban Runoff Pollution Prevention Program
SFBAAB	San Francisco Bay Area Air Basin
SGMA	Sustainable Groundwater Management Act
SRA	State Responsibility Area
SSC	CDFW Species of Special Concern
SWRCB	State Water Resource Control Board
TACs	Toxic Air Contaminants
TCRs	Tribal Cultural Resources
TPZ	Tree Protection Zone
USACE	United States Army Corps of Engineers
USBR	U.S. Bureau of Reclamation
USEPA	United States Environmental Protection Agency
USFWS	United States Fish and Wildlife Service
Valley Water	Santa Clara Valley Water District
Vdb	Vibration decibels
VHP	Santa Clara Valley Habitat Plan
VPS	Vasona Pump Station
VOCs	volatile organic compounds
VTA	Santa Clara Valley Transportation Authority
WBWG	Western Bat Working Group

Key Terminology

***Aquatic Avoidance and Minimization Measures (Aquatic AMMs)**:* Measures that must be incorporated into all projects covered by the Santa Clara Valley Habitat Plan (VHP) in order to comply with VHP Condition 3 (Maintain Hydrologic Conditions and Protect Water Quality). The Aquatic AMMs protect watershed health and aquatic habitat, primarily through reducing stormwater discharge and pollutant runoff from project sites.

***Beneficial Impact**:* A project impact is considered beneficial if it would result in the enhancement or improvement of an existing physical condition in the environment – no mitigation is required.

***Best Management Practices (BMPs)**:* Measures that are formally adopted by Valley Water's Board of Directors and implemented as part of Valley Water's standard operating procedures. These include methods, activities, procedures, and other management practices for the avoidance or minimization of potential adverse environmental effects. They have been designed for routine incorporation into project design and construction to prevent impacts.

***Less-than-significant Impact**:* This is indicated in the Initial Study checklist where the impact does not reach the standard of significance set for that factor and the Project would not cause a substantial change in the environment (no mitigation needed).

***Less-than-significant Impact with Mitigation**:* This is indicated in the Initial Study checklist where the impact is determined to exceed the applicable significance criteria, but for which feasible mitigation measure(s) are available to reduce the impact to a level of less-than-significant.

***Mitigation Measures**:* Mitigation includes: (a) avoiding the impact altogether by not taking a certain action or parts of an action; (b) minimizing impacts by modifying, or by limiting the degree or magnitude, of the action and its implementation; (c) rectifying the impact by repairing, rehabilitating, or restoring the impacted environment; (d) reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action; and (e) compensating for the impact by replacing or providing substitute resources or environments (Public Resources Code, Sections 21083 & 21087).

***No Impact**:* This is indicated in the Initial Study where, based on the environmental setting and/or the nature of the Project, the checklist item does not apply to the proposed Project.

***Off-site Staging Area**:* Previously disturbed Valley Water-owned property on the west side of Los Gatos Creek that may be temporarily used during construction for staging equipment and materials stockpiling and storage.

***Potentially Significant Impact**:* An environmental effect that may cause a substantial adverse change in the environment. Potentially significant impacts are treated the same as significant impacts and mitigation measures have been prescribed to avoid the impact or reduce the impact to a less-than-significant level.

***Project Site**:* The area in which all proposed facility improvements and upgrades would be installed and constructed and in which all construction-related ground disturbance would occur. The Project Site includes all portions of the Vasona Pump Station (VPS) except the creek discharge dissipation structure, as well as the flowmeter vault located in the Valley Water maintenance road adjacent to the VPS perimeter fencing.

***Significance Criteria or Significance Thresholds**:* Qualitative or quantitative standards, or sets of criteria, used by the CEQA Lead Agency to determine whether an impact would be considered significant. As the CEQA Lead Agency for the Project, Valley Water relied upon the significance criteria set forth in the CEQA Guidelines and the regulatory standards of local, State, and Federal agencies.

***Significant Impact**:* An impact that would likely result in a substantial adverse change in the physical environment. Mitigation measures have been prescribed to avoid or reduce all significant impacts to a less-than-significant level.

Section 1. **Introduction**

Organization of This Document

This document is organized to assist the reader in understanding the potential impacts that the Project may have on the environment and to fulfill CEQA (Public Resources Code [PRC] Section 21000 *et seq.*). **Section 1** indicates the purpose under CEQA, sets forth the public participation process, and summarizes applicable State and federal regulatory requirements. **Section 2** describes the location and features of the Project and **Section 3** evaluates the potential impacts through the application of the CEQA Initial Study Checklist questions to Project implementation. **Section 4** lists the contributors and **Section 5** supplies the references used in its preparation.

Purpose of the Mitigated Negative Declaration

The Santa Clara Valley Water District (Valley Water), acting as the CEQA Lead Agency, has prepared this Mitigated Negative Declaration (MND) to provide the public, responsible agencies, trustee agencies, and the Valley Water Board of Directors with information about the potential environmental effects of the Vasona Pump Station (VPS) Upgrade (Project).

This MND was prepared consistent with CEQA, the CEQA Guidelines (Title 14, California Code of Regulations [CCR] 15000 *et seq.*), and Valley Water procedures for implementation of CEQA (Environmental Management System - Environmental Planning Q520D01). CEQA requires that public agencies, such as Valley Water, identify the significant adverse impacts and beneficial environmental effects of their actions. Beneficial effects should be encouraged and expanded where possible and significant adverse impacts should be mitigated in cases where avoidance and minimization are not feasible.

In addition to acting as the CEQA Lead Agency for its projects, Valley Water's mission includes objectives to conduct its activities in an environmentally sensitive manner as a steward of Santa Clara Valley watersheds. Valley Water strives to preserve the natural qualities, scenic beauty, and recreational uses of Santa Clara Valley's waterways by using methods that reflect an ongoing commitment to protecting the environment and public trust resources.

Decision to Prepare a Mitigated Negative Declaration

The Initial Study (**Section 3**) for the Project identifies potentially significant impacts on air quality, biological resources, noise, and hazardous materials. Mitigation measures are prescribed to reduce these potentially significant Project impacts to a less-than-significant level. This proposed MND is consistent with CEQA Guidelines §15070, which states that a MND is appropriate when a project's Initial Study identifies potentially significant effects, but:

a. Revisions to the project plans were made and agreed to before the proposed MND and Initial Study were released for public review that would avoid, or reduce the effects to a point where clearly no significant effects would occur, and

b. There is no substantial evidence, in light of the whole record before the CEQA Lead Agency, that the project, as revised, may have a significant effect on the environment.

Valley Water has committed to implementing all mitigation measures identified in this MND and has determined that there is no substantial evidence, in light of the whole record before it, that the Project, as revised, would have a significant effect on the environment. Therefore, preparation of this proposed MND is appropriate.

Public Review Process

This Draft MND will be circulated to the State Clearinghouse, local and State agencies, interested organizations, and individuals who may wish to review and provide comments on the project description, the proposed mitigation measures, or other aspects of the report. Publication will commence the 30-day public review period per CEQA Guidelines §15105(b). The public review period will end on **January 23, 2025**.

A hardcopy of the Draft MND will be available for public review from 8AM to 5PM weekdays at:

Valley Water Headquarters Building
5700 Almaden Expressway
San Jose, CA 95118

A hardcopy of the Draft MND will also be available for review at:

Los Gatos Public Library
100 Villa Avenue
Los Gatos, CA 95030

The Draft MND can also be accessed online at:

- Valley Water website: https://www.valleywater.org/public-review-documents
- Project-specific website: https://www.valleywater.org/project-updates/vasona-pump-station-upgrade-project
- State Clearinghouse CEQAnet web portal: https://ceqanet.opr.ca.gov

Comments on the Draft MND should be submitted in writing via mail or email by 5PM on **January 23, 2025:**

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The proposed MND along with any comments will be considered by the Valley Water Board of Directors prior to making a decision on the Project.

Interagency Collaboration and Regulatory Review

The CEQA review process is intended to provide both trustee and responsible agencies with an opportunity to provide input on the Project. Trustee agencies are State agencies that have authority by law for the protection of natural resources held in trust for the public. CEQA responsible agencies are those that have some responsibility or authority for carrying out or approving a project; in many instances these public agencies must make a discretionary decision to issue a permit; provide right-of-way, funding, or resources that are critical to project implementation. In the case of the Project, the Town of Los Gatos, Santa Clara Valley Habitat Agency, Santa Clara County Hazardous Materials Compliance Division, Santa Clara County

Fire Department (SCCFD), and the Bay Area Air Quality Management District (BAAQMD) are responsible agencies as defined in CEQA. Valley Water would work with responsible agencies to ensure that the Project meets all applicable regulatory requirements.

This MND is intended to assist trustee and responsible agencies carry out their responsibilities for permit review or approval authority over the Project. Implementation of the Project is anticipated to require the permits and approvals identified in **Table 1**, below.

Table 1: Summary of Anticipated Permits and Approvals

Agency	Permit/Review Required
Town of Los Gatos	Tree Removal Permit
Santa Clara Valley Habitat Agency	Valley Habitat Plan compliance
BAAQMD	Authority to Construct (A/C) permit and Permit to Operate (P/O) for backup generators
Santa Clara County Hazardous Materials Compliance Division	Aboveground Petroleum Storage Act (APSA) program compliance
SCCFD	Hazardous Materials Business Plan (HMBP) program compliance

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Section 2. Project Description

Background

Santa Clara Valley Water District (Valley Water) is proposing the Vasona Pump Station (VPS) Upgrade Project (Project or proposed Project) to modernize major equipment at the VPS that has reached the end of its useful life, to improve the operational reliability and flexibility of Valley Water's water supply system, and to meet projected future demand for treated water. The future demand for treated water is based on the growth approved by the local jurisdictions and presented in their adopted General Plans. The local jurisdictions are the local retail water suppliers and Valley Water's wholesale water customers.

The VPS was constructed in 1975 and is a key component of Valley Water's water conveyance system. The VPS houses four booster pumps, an emergency (50 kilowatt [kW]) standby natural gas generator, remote telemetry, and a series of valves that provide interconnections between raw water pipelines. An existing 480 Volt PG&E transformer provides electrical power to the pumps. The VPS booster pumps are used on an as-needed basis to boost pressure in Valley Water's raw water pipelines (Almaden Valley Pipeline, Rinconada Force Main, Central Pipeline, and Stevens Creek Pipeline) that convey imported water from the California Department of Water Resources' (DWR) South Bay Aqueduct and the U.S. Bureau of Reclamation's (USBR) San Luis Reservoir, and local surface water from Anderson and Calero Reservoirs, to Valley Water's water treatment plants (Rinconada Water Treatment Plant, Santa Teresa Water Treatment Plant, and Penitencia Water Treatment Plant) when gravity flows are not sufficient to meet treated demand. The VPS valves provide interconnections between raw water pipelines to control flow under various pumping and gravity flow operational scenarios. The VPS is also used to control the flow of raw water that is conveyed to groundwater recharge facilities at existing turnouts along Valley Water's raw water pipelines.

Most of the original equipment at the VPS is no longer supported by the manufacturers, making equipment replacement and repair difficult. Many of the pumps, motors, drives, valves, actuators, and electrical and control systems have reached the end of their useful life and are overdue for replacement. In addition, because the quantity and availability of Valley Water's water supply sources can vary considerably seasonally and annually, depending on the source of the water that is being sent to treatment prior to delivery to customers, the existing pump capacities at the VPS fall short of meeting the anticipated future demand for treated water under certain operational flow scenarios.

Project Objectives

The Project would modernize major equipment at VPS that has reached the end of its useful life and provide reliable and efficient operation and capacity of the Valley Water System to meet projected future demand for water service. Specific Project objectives are as follows:

- Eliminate risk of failure due to equipment age and/or condition.
- Increase the operational flexibility and efficiency of the Valley Water supply system.
- Prepare for future capacity needs.
- Increase the current level of service to meet the demands for treated water and raw water turnouts for the groundwater program.
- Upgrade the electrical system to increase reliability and safety in both operation and maintenance.

Project Location

The VPS is located at 14545 Oka Road in the Town of Los Gatos, northwest of the intersection of State Route (SR) 17 and SR 85, on the south side of Los Gatos Creek. The VPS is located on two primary parcels [APNs 424-080-76 and 424-440-30] and includes several single-story buildings with subterranean levels, including an administrative building, a meter shop, a Pump Building, a Valve Yard, a pilot building, storage containers, and related facilities and infrastructure. A creek discharge dissipation structure used to augment flow in Los Gatos Creek is located next to, but outside of, the Project Site. The VPS is accessed via a gravel driveway and two Valley Water security gates located off Oka Road at Fremont Court. The VPS is enclosed in perimeter fencing and vegetative screening. The VPS is relatively level (elevations range from approximately 260 to 273 feet above mean sea level). Existing vegetation within the fenced facility is predominantly ornamental. Land uses surrounding the Project Site consist of single-family and multi-family residential to the north and east, Fremont Court and SR 85 to the south, and Los Gatos Creek to the north and west.

The Project would also upgrade appurtenances in an existing flowmeter vault located in Valley Water's gravel maintenance road along the south side of Los Gatos Creek, 50 feet northwest of and outside of the VPS perimeter fencing, on APN 424-440-29. Access to the flowmeter vault for construction vehicles and equipment would occur via an existing security gate at the VPS fence line.

The VPS facilities within the perimeter fencing and the disturbance area for the flowmeter vault upgrades in the adjacent maintenance road comprise the Project Site. The Project Site is the area within which all facility upgrades and improvements would be installed and is shown in **Figure 2**.

Construction staging and vehicle parking would occur at the VPS. Additional construction staging, if needed, would occur offsite within two Valley Water-owned parcels located on the northwest side of Los Gatos Creek, north of SR 85 and east of Winchester Boulevard (APNs 424-310-18 and 424-320-32). Valley Water currently uses the Off-site Staging Area for materials storage. Groundcover at the Off-site Staging Area is gravel interspersed by annual grasses. Like the VPS, the Off-site Staging Area is accessed via a Valley Water security gate and is enclosed by perimeter fencing. Surrounding land uses include neighborhood commercial to the north (the Aventino Apartments and Netflix's offices), Los Gatos Creek to the east, SR-85 to the south, and Winchester Boulevard to the west. The Off-site Staging Area is shown in **Figure 2** and **Figure 3**.

The Project Site and the Off-site Staging Area are owned by Valley Water. The Project would not result in any permanent changes to land use or sensitive land covers. Apart from work in the flowmeter fault located in the Valley Water maintenance road, all work would occur within the fenced areas. There would be no direct disturbance to riparian vegetation or habitat along Los Gatos Creek. See **Table 2**, below.

Table 2: Affected Parcels

Location	APN	Area (acres)	Existing Use	General Plan Designation/Zoning	Proposed Project Activity
Vasona Pump Station	424-080-76	1.87	Admin building, access, parking, materials storage, and creek augmentation via a discharge facility and dissipation structure	Low Density Residential/R-1:8	On-site construction staging area
	424-440-30	1.32	Valve Yard, Pump Station, Pilot Building	Low Density Residential/R-1:8	Construction work area (6,659 square feet)
Valley Water Maintenance Road	424-440-29	0.1	Maintenance access	Low Density Residential/R-1:8	Replace equipment in existing concrete fault
Off-site Staging Area (if needed)	424-320-18	0.70	Materials storage	Neighborhood Commercial	Construction staging area
	424-320-32	2.6	Materials storage	Neighborhood Commercial	Construction staging area

Proposed Improvements

Valley Water proposes to replace two 400-horsepower (hp) centrifugal pumps and two 200-hp horizontal centrifugal pumps with four horizontal split-case 600-hp pumps. The new pumps would be equipped with variable frequency drives to improve energy efficiency. To support the new pumps, existing valves, flow meters, motor controls, electrical power distribution and control systems, and telemetry equipment would be replaced and upgraded. The Project would install two generators: (1) An existing 50 kW (67-hp) natural gas generator located inside the Pump Building would be replaced by a 100 kW (134-hp) natural gas generator at the same location and connected to the same PG&E natural gas line; and (2) a new 1,250 kW (1,676-hp) diesel standby generator, and a new 6,000-gallon aboveground diesel storage tank with double containment, would be installed next to the Pump Building within a new noise-attenuating enclosure.

Currently, electrical service is provided to the VPS at 1,600A, 480 volts from a PG&E-owned 12-kilovolt (kV) overhead feeder and pad-mounted transformer adjacent to Fremont Court. As part of the proposed Project, electrical service to the VPS would be increased to 4,000A, 480 volts. The existing pad-mounted PG&E transformer located adjacent to Fremont Court would be upgraded and replaced with a new pad-mounted PG&E transformer that would be installed by PG&E on the east side of the Pump Building prior to completion of construction while the contractor is on site. The main power distribution switchboard would also be relocated from the basement of the Pump Building to a new equipment enclosure located on the east side of the Pump Building, next to the upgraded pad-mounted transformer. All improvements and upgrades would occur within previously developed areas and within the footprint of existing VPS facilities and infrastructure, with the majority of the upgrades and improvements being installed indoors inside existing structures such as the Pump Building, Valve Yard, and Pilot Building. See **Table 3** for the list of equipment to be replaced and upgraded. New equipment enclosures would be installed to house the new 1,250 kW diesel standby generator (34 feet x 20 feet) and PG&E service entrance and switchgear (25 feet x 15 feet). A new prefabricated 30 feet x 15 feet electrical building would be installed to house the motor control center and variable frequency drives. The enclosures would be installed on the south side of the existing Pump Building, below the height of the existing Pump Building to provide a visual buffer and attenuate operational noise for existing residences to the north (See **Figure 4**).

Equipment enclosures would be designed to meet the following criteria to reduce noise levels at adjacent residents:

- Pump Building Design Criteria: Not to exceed 61 dBA L_{eq} at northern wall of Pump Building.
- Generator Design Criteria: Not to exceed 64 dBA L_{eq} at northern side of generator enclosure.
- Transformer Design Criteria: Not to exceed 71 dBA L_{eq} at eastern side of enclosure.

The Project would incorporate concrete block walls, sound barriers, and/or mufflers into final design plans to ensure that the proposed backup generator, 600-hp pumps, and transformer comply with applicable exterior noise standards.

Table 3: Existing and New Equipment List

Existing Equipment to Be Removed or Replaced	New Equipment to Be Installed
Remove main service/automatic transfer switch (1600A rated)	Main service with automatic source transfer and distribution feeders (4000 A rated)
Remove motor control center with four reduced voltage solid state starters	Four standalone 600 HP, 480V adjustable speed drives
Remove two 200-HP pump motors and two 400-HP pump motors	Four 600-HP pump motors
	1,250 kW, 480V standby generator (diesel fuel) – outdoor enclosure next to Pump Building
	6,000-gallon aboveground diesel fuel tank with double containment
Remove 50 kW, 480V standby generator (natural gas) – open chassis located inside Pump Building	100 kW 480V standby generator (natural gas) – open chassis located inside Pump Building
Remove 150A, 480V automatic transfer switch	200A, 480V automatic transfer switch
Replace 480V/208Y-120V and 480V/120-240V distribution transformers in Pump Building	480V switchboard a – non-critical loads
Replace 208Y/120V and 120-240V panelboards in Pump Building	480V switchboard b – critical loads (replace in Pump Building)
Remove four pump gauge panels	Electrical ASD Building with interior electrical distribution and lighting
Replace SCADA remote telemetry unit	Four PAC based pump control panels
Replace local network switches and interface hardware	One PAC based master control panel

Project Construction

Construction would occur within previously developed areas at the VPS, and in the flow meter vault located in the adjacent Valley Water maintenance road. An estimated 254 cubic yards of spoils requiring offsite disposal would be generated during construction, and 210 cubic yards of fill would be imported to the site. Project construction would result in a total of 0.153 acres (approximately 6,659 square feet) of ground disturbance at the Project Site. Ground disturbance includes earthmoving activities and disturbance to established vegetative groundcover, pervious surfaces, and impervious surfaces during installation and construction of the proposed facility improvements and upgrades. Improvements and upgrades made inside of existing structures do not result in ground disturbance and are not accounted for in the total ground disturbance area. Implementation of the Project would result in the creation and/or replacement of 5,175 square feet of impervious surfaces, resulting in an 869-square-foot net increase in impervious surfaces at the VPS.

Construction activities would include:

- Replacing existing pumps (two 200-hp and two 400-hp pumps) and with four 600-hp pumps).
- Installing pump motors and pump control panels.
- Replacing five valves within existing vaults at the Valve Yard.
- Pouring concrete pads for new standby generator enclosure, electrical control walk-in enclosure, and PG&E transformer and switchgear.
- Installing prefabricated equipment enclosures.
- Replacing the existing 1,600A, 480V PG&E transformer with a 4,000A, 480V transformer.
- Relocating the switchgear in the Pump Building to the northeastern corner of the VPS, adjacent to the new pad-mounted transformer.
- Trenching for duct banks and conduits between equipment.
- Replacing two flow meters in existing vaults.
- Installing/replacing auxiliary infrastructure such as valves, cables, switches, transceivers, panels, power racks, and supports.
- Restoring perimeter landscaping throughout the VPS to match existing.

Construction Staging and Site Access

Construction staging would occur at the VPS site. If additional staging area is needed, the 3.3-acre Off-site Staging Area on the west side of Los Gatos Creek would be used.

No changes to site access are needed to implement the Project. Access to the VPS parcels would be provided via the existing Valley Water security gates and driveway at Fremont Court and Oka Lane. Access to the flowmeter vault in the Valley Water maintenance road would occur via an existing gate at the adjacent VPS fence line. Site access to the Off-site Staging Area on the west of Los Gatos Creek would occur via the existing security gate and driveway off of Winchester Circle.

Material deliveries would range from two to four truck trips per day.

Construction Schedule and Work Hours

Construction is anticipated to take 18 months to complete. Although the exact timing of construction is still unknown, most likely, it would be broken down into three 6-month phases, with each phase occurring sometime between October and April when demand for treated water is lowest in order to avoid disrupting raw water deliveries to treatment plants. Construction is planned to occur Monday through Friday 8AM to 6PM, consistent with the Town of Los Gatos construction work hours. However, if nighttime or weekend construction is necessary to meet the schedule, to minimize noise levels and the risk of disrupting nearby residences, any nighttime and weekend work would occur indoors, inside buildings and structures such as the

Pump Building, Pilot Building, and new Electrical Building. Outdoor work would not occur outside of the Town of Los Gatos' construction work hours identified in Chapter 16 of the Town's Municipal Code.

Construction Equipment

Construction equipment would include:

- Trucks/Trailers
- Cranes
- Excavators or backhoe loaders
- Compactors
- Skid steer loader
- Paving equipment
- Portable pumps
- Generators
- Welding equipment
- Air compressors
- Concrete pump truck
- Dump trucks
- Forklift

Upon the completion of construction activities, the Project Site and Off-site Staging Area (if used) would be restored to their preexisting conditions.

Future Operations and Maintenance

Like existing operations, future operation of VPS would be controlled remotely from the Raw Water Control Center at Rinconada Water Treatment Plant. Equipment would be operated and maintained in a manner similar to existing conditions, with low levels of activity at the VPS. No changes in staffing levels are anticipated.

The 100 kW natural gas standby generator that would replace the existing 50 kW natural gas generator located inside of the Pump Building would provide limited backup power for critical motor control and communications equipment in the event of power interruptions. The new 1,250 kW diesel standby generator would provide backup power for the new pumps and other critical equipment in the event of power interruptions. The standby generators would be tested monthly for 2 hours. The new 1,250 kW diesel standby generator would be Tier-4 rated (technology with reduced emissions of PM and NOx by about 90%). The noise-attenuating enclosure for the new 1,250 kW diesel standby generator would ensure noise levels are maintained within local noise limits. Diesel exhaust emissions would be directed away from the adjacent residents through a side vent or chimney with an air flow deflector.

Figure 1: Regional Location Map

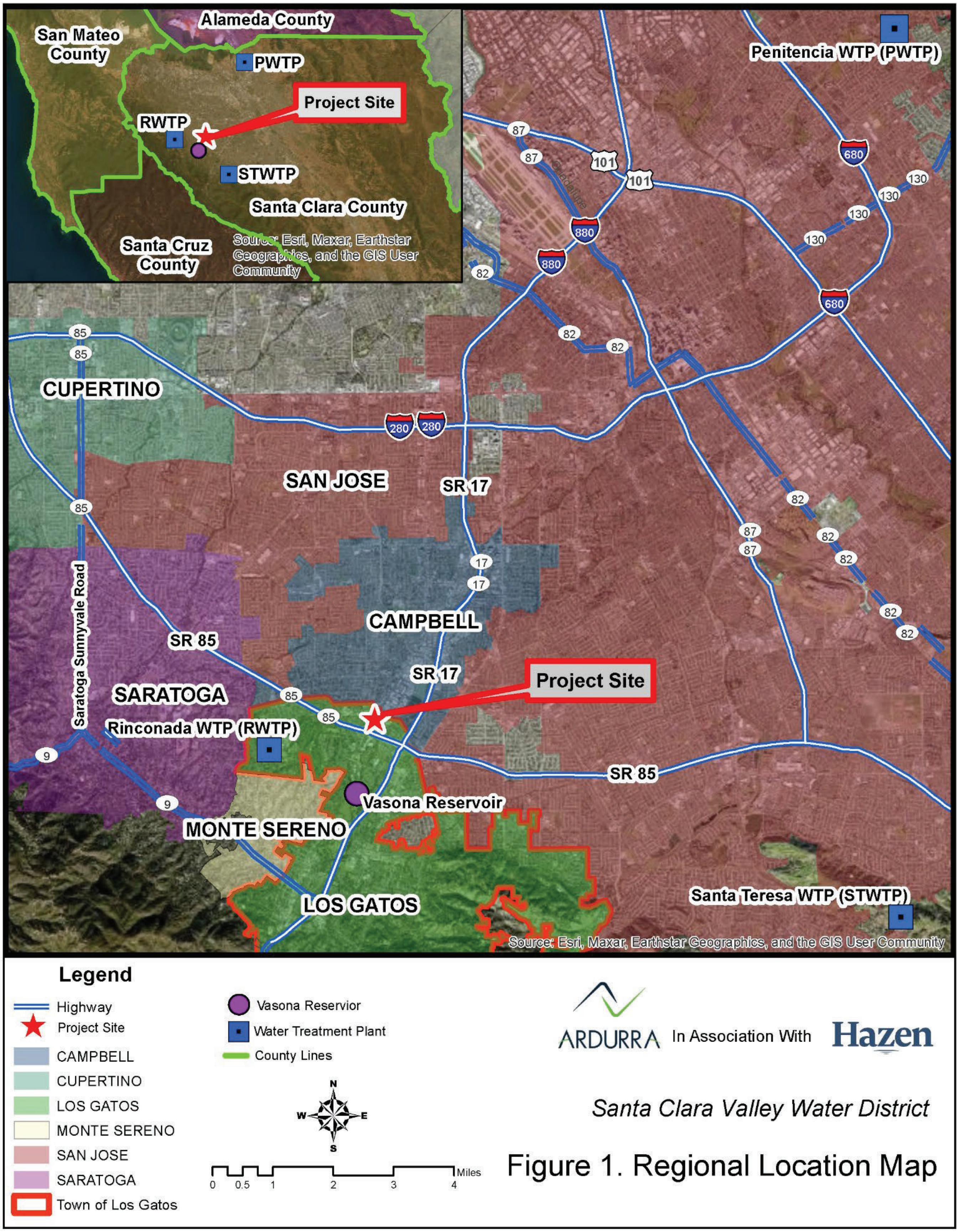

Figure 2: Project Location Map

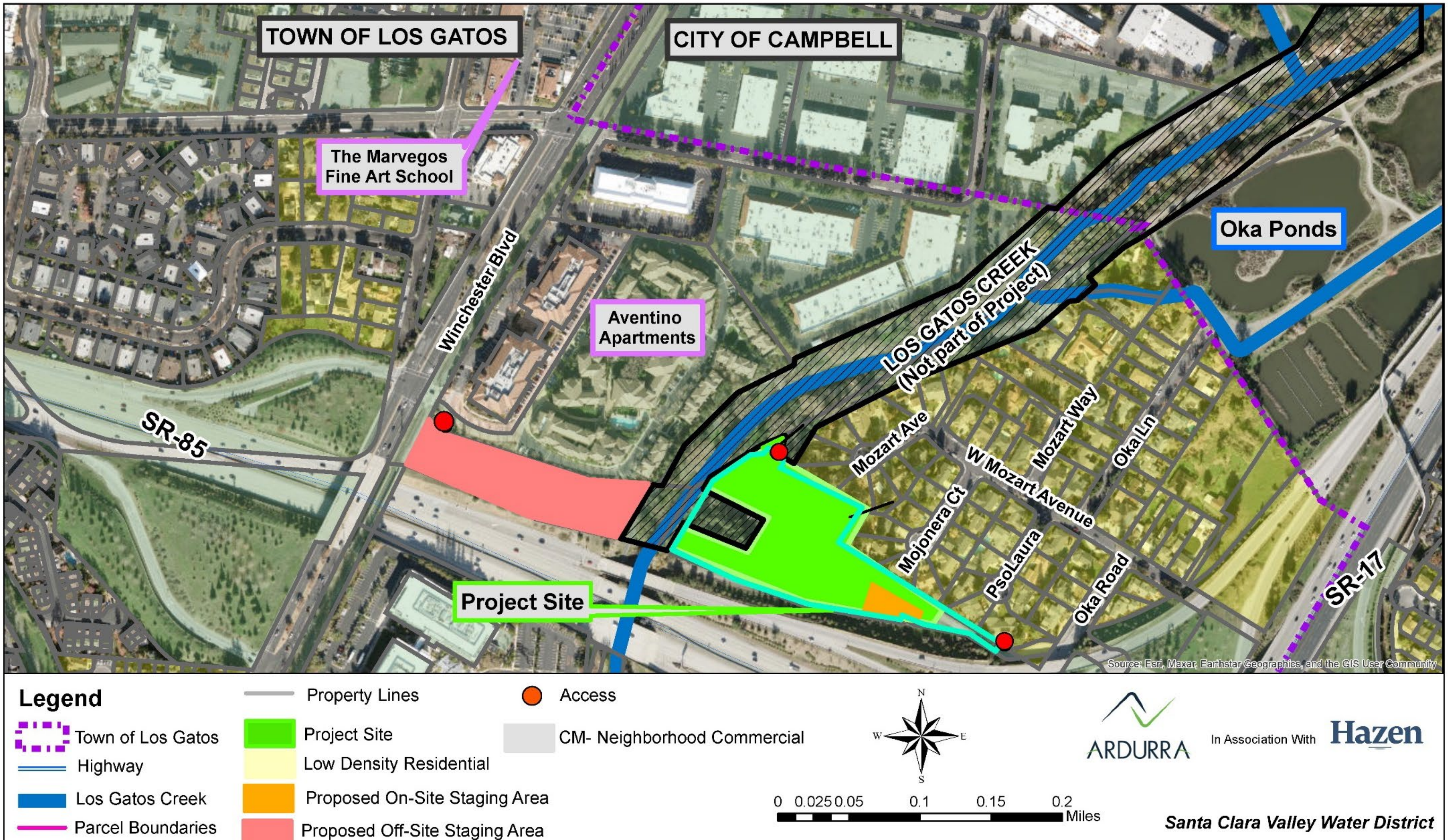

Figure 2. Vasona Pump Station Project Location Map

Figure 3: Aerial Photograph

Figure 4: Existing and Proposed Site Map

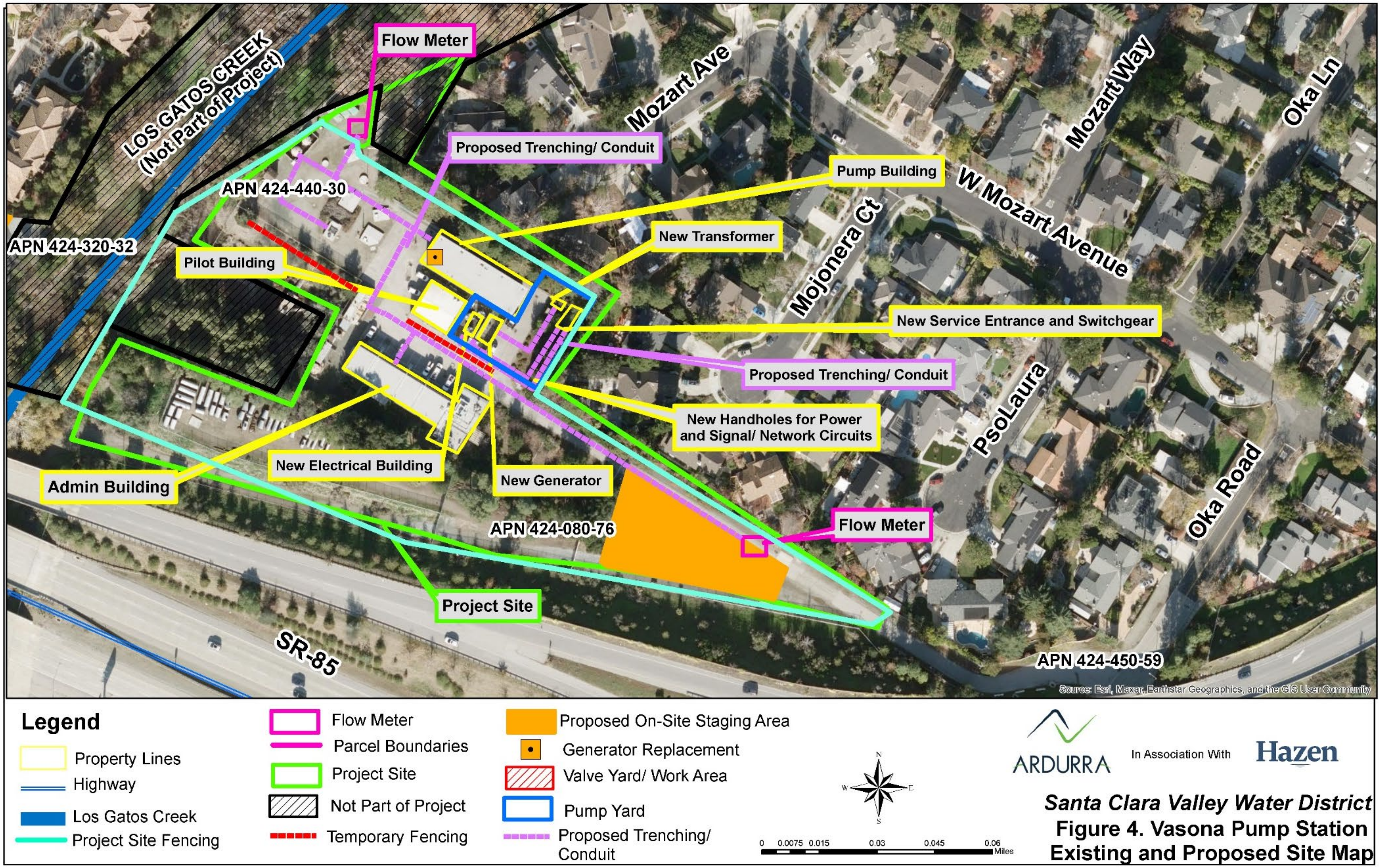

Figure 5: Site Plan

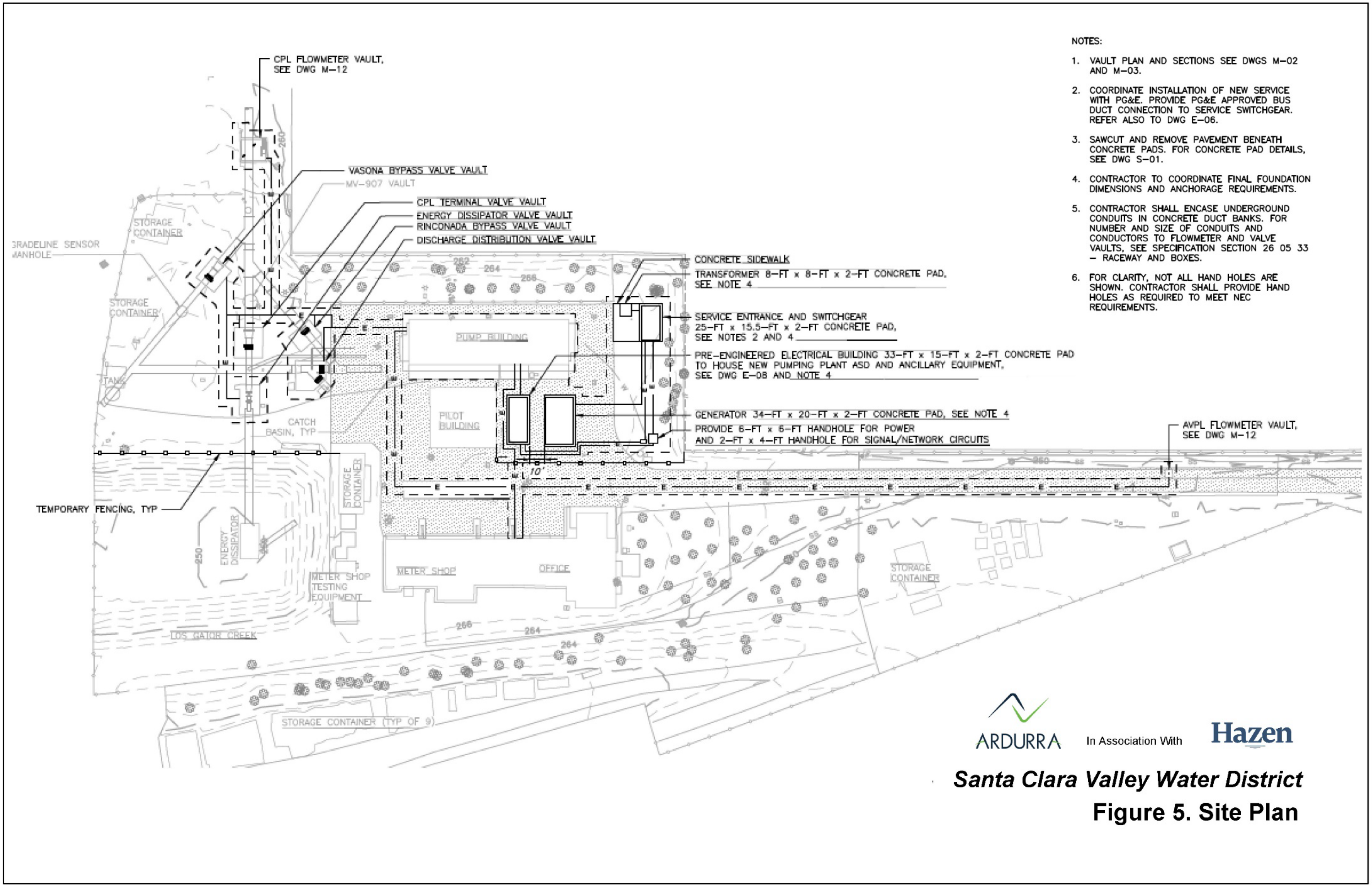

Figure 6: Photo Location Map

Figures 7A thru 7D: Site Photos

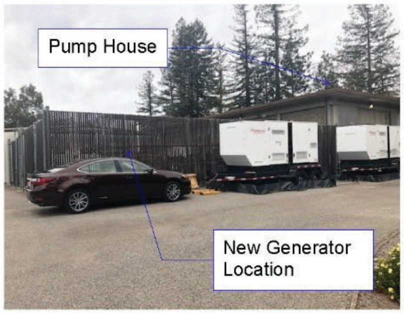

Photo 1: Looking Northwest from Project Driveway

Photo 2: Looking North from Project Driveway

Photo 3: Looking West from Project Driveway

Photo 4: Looking South from Northeast Property Corner

Photo 5: Looking South from Northeast Property Corner

Photo 6: Looking South from Pilot Building

Photo 7: Looking West from the Pilot Building

Photo 8: Looking Northwest from Pilot Building

Photo 9: Looking North from Pilot Building

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Vasona Pump Station Upgrade Project

Figure 7 A. Site Photos

Photo 10: Looking Northwest from Pump House Entrance

Photo 11: Looking Northwest from Pump House Entrance

Photo 12: West Side of Pump House Looking East

Photo 13: East Side of Pump House Looking South

Photo 14: West Side of Pump House Looking East

Photo 15: East Side of Pump House Looking West

Photo 17: General Pump Assembly

Photo 18: East Side of Pump House Looking West

Photo 19: East Side of Pump House Looking West

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Figure 7 B. Site Photos

Photo 20: Looking South in Basement of Pump House

Photo 21: Looking West in the Basement of Pump House

Photo 22: Looking East in Basement of Pump House

Photo 23: Looking East in Basement of Pump House

Photo 24: Pump/Vault Station

Photo 25: Pump/ Vault Station

Photo 26: Pump/ Vault Station

Photo 27: Pump/ Vault Station

Photo 28: Pump House

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Vasona Pump Station Upgrade Project

Figure 7 C. Site Photos

Photo 29: Pump House

Photo 30: Offsite Staging Area

Photo 31: Offsite Staging Area

Photo 32: View Looking South on Mozart Avenue Toward Project Entrance

Photo 33: View from Mozart Avenue Looking Southwest Toward Project Site

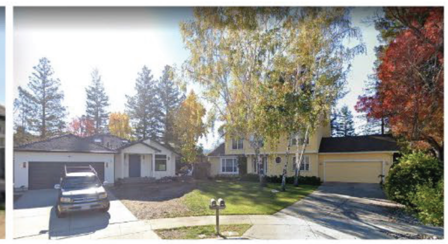

Photo 34: View from end of Mozart Avenue (in the cul-de-sac) Looking South Toward the Project Site

ARDURRA In Association With Hazen

Vasona Pump Station Upgrade Project

Figure 7 D. Site Photos

Valley Water Standard Best Management Practices

Valley Water standard Best Management Practices (BMPs) are practices that Valley Water has determined generally prevent, avoid, or minimize potentially adverse effects associated with construction and other activities. Valley Water's standard BMPs have been formally adopted by the Valley Water Board of Directors and incorporated into Valley Water's construction and maintenance activities as standard protocol (Valley Water, 2014). The Valley Water standard BMPs that are applicable to the Project and that have been incorporated into the Project are presented in **Table 4**. The applicable construction-related BMPs would be incorporated into the construction documents (plans and specifications); Valley Water's construction contractor(s) would be contractually required to adhere to them. In cases where, even with implementation of the standard BMPs, Project-related construction, maintenance, or operational impacts are determined to be potentially significant, implementation of the mitigation measures presented in **Section 3** would reduce the impact to a less-than-significant level.

Table 4: Applicable Valley Water Standard BMPs

Air Quality
BMP AQ-1: BAAQMD Dust Control Measures The following Bay Area Air Quality Management District (BAAQMD) Dust Control Measures will be implemented: 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 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. Water used to wash the various exposed surfaces (e.g., parking areas, staging areas, soil piles, graded areas, etc.) will not be allowed to enter waterways; 5. All vehicle speeds on unpaved roads shall be limited to 15 mph; 6. 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; 7. 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), and this requirement shall be clearly communicated to construction workers (such as verbiage in contracts and clear signage at all access points); 8. All construction equipment shall be maintained and properly tuned in accordance with manufacturer‘s specifications, and all equipment shall be checked by a certified visible emissions evaluator; 9. Correct tire inflation shall be maintained in accordance with manufacturer‘s specifications on wheeled equipment and vehicles to prevent excessive rolling resistance; and, 10. Post a publicly visible sign with a telephone number and contact person at the Lead Agency to address dust complaints; any complaints shall be responded to and take corrective action within 48 hours. In addition, a BAAQMD telephone number with any applicable regulations will be included.

Air Quality

BMP AQ-2: Avoid Stockpiling Odorous Materials

Materials with decaying organic material, or other potentially odorous materials, will be handled in a manner that avoids impacting residential areas and other sensitive receptors, including:

1. Avoid stockpiling potentially odorous materials within 1,000 feet of residential areas or other odor sensitive land uses; and
2. Odorous stockpiles will be disposed of at an appropriate landfill.

Water Quality

BMP WQ-4: Limit Impacts from Staging and Stockpiling Materials

1. To protect on-site vegetation and water quality, staging areas should occur on access roads, surface streets, or other disturbed areas that are already compacted and only support ruderal vegetation. Similarly, all equipment and materials (e.g., road rock and project spoil) will be contained within the existing service roads, paved roads, or other pre-determined staging areas.
2. Building materials and other project-related materials, including chemicals and sediment, will not be stockpiled or stored where they could spill into water bodies or storm drains.
3. No runoff from the staging areas may be allowed to enter water ways, including the creek channel or storm drains, without being subjected to adequate filtration (e.g., vegetated buffer, swale, hay wattles or bales, silt screens).
4. The discharge of decant water to water ways from any on-site temporary sediment stockpile or storage areas is prohibited.
5. During the wet season, no stockpiled soils will remain exposed, unless surrounded by properly installed and maintained silt fencing or other means of erosion control. During the dry season, exposed, dry stockpiles will be watered, enclosed, covered, or sprayed with non-toxic soil stabilizers.

BMP 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.

BMP 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.

Water Quality

4. An area outside of the channel and floodplain will be designated to clean out concrete transit vehicles.

BMP WQ-9: Use Seeding for Erosion Control, Weed Suppression, and Site Improvement

Disturbed areas shall be seeded 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.

BMP WQ-11: Maintain Clean Conditions at Work Sites

The work site, areas adjacent to the work site, and access roads will be maintained in an orderly condition, free and clear from debris and discarded materials on a daily basis. Debris may include unused or discarded construction materials, lunch wrappers, cigarette butts, etc. Personnel will not sweep, grade, or flush surplus materials, rubbish, debris, or dust into storm drains or waterways.

For activities that last more than one day, materials or equipment left on the site overnight will be stored as inconspicuously as possible and will be neatly arranged. Any materials and equipment left on the site overnight will be stored to avoid erosion, leaks, or other potential impacts to water quality.

Upon completion of work, all building materials, debris, unused materials, concrete forms, and other construction-related materials will be removed from the work site. Prevent litter from escaping by covering loads that are being transported to and from site.

BMP 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, including all products containing plastic or monofilament materials, shall be removed at the completion of the project (e.g., silt fences)

Water Quality

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.

BMP WQ-17: Manage Sanitary and Septic Waste

Temporary sanitary facilities will be located on jobs that last multiple days, in compliance with California Division of Occupational Safety and Health (Cal/OSHA) regulation 8 California Code of Regulations 1526. All temporary sanitary facilities will be located where overflow or spillage will not enter a watercourse directly (overbank) or indirectly (through a storm drain).

Hazards and Hazardous Materials

BMP 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.

BMP 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.

BMP 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).

Hazards and Hazardous Materials

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.

BMP HM-10: Utilize Spill Prevention Measures

Prevent the accidental release of chemicals, fuels, lubricants, and non-storm drainage water following these measures:

1. Field personnel will be appropriately trained in spill prevention, hazardous material control, and cleanup of accidental spills;
2. Equipment and materials for cleanup of spills will be available on site, and spills and leaks will be cleaned up immediately and disposed of according to applicable regulatory requirements;
3. Field personnel will ensure that hazardous materials are properly handled, and natural resources are protected by all reasonable means;
4. Spill prevention kits will always be in close proximity when using hazardous materials (e.g., at crew trucks and other logical locations), and all field personnel will be advised of these locations; and
5. The work site will be routinely inspected to verify that spill prevention and response measures are properly implemented and maintained.

BMP 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), or when a work area is designated a “Very High Fire Hazard Severity Zone” by Cal Fire, 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.

Traffic Control

BMP 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.

Biological Resources Protection

BMP BI-5: Avoid Impacts to Nesting Migratory Birds

Nesting birds are protected by state and federal laws. Valley Water 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.

Biological Resources Protection

BMP 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 will 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.

BMP 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*.

BMP BI-10: Avoid Animal Entry and Entrapment

All pipes, hoses, or similar structures less than 12 inches diameter will be closed or covered to prevent animal entry. All construction pipes, culverts, or similar structures, greater than 2-inches diameter, stored at a construction site overnight, will be inspected thoroughly for wildlife by qualified biologist or properly trained construction personnel before the pipe is buried, capped, used, or moved. If inspection indicates presence of sensitive or state- or federally listed species inside stored materials or equipment, work on those materials will cease until a qualified biologist determines the appropriate course of action.

To prevent entrapment of animals, all excavations, steep-walled holes or trenches more than 6-inches deep will be secured against animal entry at the close of each day. Any of the following measures may be employed, depending on the size of the hole and method feasibility:

1. Hole to be securely covered (no gaps) with plywood, or similar materials, at the close of each working day, or any time the opening will be left unattended for more than one hour; or
2. In the absence of covers, the excavation will be provided with escape ramps constructed of earth or untreated wood, sloped no steeper than 2:1, and located no farther than 15 feet apart; or
3. In situations where escape ramps are infeasible, the hole or trench will be surrounded by filter fabric fencing or a similar barrier with the bottom edge buried to prevent entry.

Biological Resources Protection
BMP BI-11: Minimize Predator Attraction Remove trash daily from the worksite to avoid attracting potential predators to the site.

Cultural Resources Protection
BMP CUL-1: Accidental Discovery of Archeological Artifacts or Burial Remains If historical or unique archaeological artifacts are accidentally discovered during construction, work in affected areas will be restricted or stopped until proper protocols are met. Work at the location of the find will halt immediately within 100 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. 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 100 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.

SOURCE: Santa Clara Valley Water District, 2014.

Santa Clara Valley Habitat Plan (VHP)

The Project Site and Off-site Staging Area are in the Santa Clara Valley Habitat Plan (VHP) permit area. The VHP provides a streamlined approach for requesting and receiving endangered species permits. It applies only to eligible projects or activities, referred to as *covered activities,* undertaken within the VHP permit area. The Project is a VHP-covered activity and classified as “Urban Development” (VHP page 2-39), which is inclusive of all ground-disturbing activities within designated urban areas in the VHP permit area. This category of covered projects includes, but is not limited to, the construction, maintenance, and use of water delivery and storage facilities including treatment plants, pipelines, percolation ponds, and pump stations. As a VHP co-permittee, Valley Water obtains federal and state incidental take coverage for Valley Water’s covered activities in the VHP permit area. The VHP requires that all of Valley Water’s covered projects comply with the applicable VHP Aquatic Avoidance and Minimization Measures (AMMs) in **Table 5**.

Field-verified VHP land cover types at the Project Site and the Off-site Staging Area are Urban Suburban and Ornamental Woodland (**Figure 8**). The Project is not subject to any VHP species-specific wildlife or rare plant survey requirements. Because VPS is an existing facility and all improvements would occur within the fence line of the existing facility, VHP stream setback requirements do not apply.

As required by the VHP, Valley Water would abide by the following VHP Conditions:

- Condition 1: Avoid Direct Impacts on Legally Protected Plant and Wildlife Species
- Condition 3: Maintain Hydrologic Conditions and Protect Water Quality

Condition 3 requires implementation of the VHP Aquatic AMMs to protect water quality and aquatic habitats. Applicable VHP Aquatic AMMs are presented in **Table 5**, below, and discussed throughout this document.

Table 5: Applicable Santa Clara Valley Habitat Plan Aquatic AMMs

AQUATIC AVOIDANCE AND MINIMIZATION MEASURES	
	General
1	Minimize the potential impacts on covered species most likely to be affected by changes in hydrology and water quality.
2	Reduce stream pollution by removing pollutants from surface runoff before the polluted surface runoff reaches local streams.
3	Maintain the current hydrograph and, to the extent possible, restore the hydrograph to more closely resemble predevelopment conditions.
4	Reduce the potential for scour at stormwater outlets to streams by controlling the rate of flow into the streams.
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.
7	Personnel shall prevent the accidental release of chemicals, fuels, lubricants, and non-storm drainage water into channels.
8	Spill prevention kits shall always be in close proximity when using hazardous materials (e.g., crew trucks and other logical locations).
11	Vehicles shall be washed only at approved areas. No washing of vehicles shall occur at job sites.
12	No equipment servicing shall be done in the stream channel or immediate flood plain, unless equipment stationed in these locations cannot be readily relocated (i.e., pumps, generators).
29	Existing native vegetation shall be retained by removing only as much vegetation as necessary to accommodate the trail clearing width. Maintenance roads should be used to avoid effects on riparian corridors
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	When conducting vegetation management, retain as much understory brush and as many trees as feasible, emphasizing shade producing and bank stabilizing vegetation. If riparian vegetation is to be removed with chainsaws, consider using saws currently available that operate with vegetable-based bar oil.
	Project Design
34	Use the minimum amount of impermeable surface (building footprint, paved driveway, etc.) as practicable.
35	Use pervious materials, such as gravel or turf pavers, in place of asphalt or concrete to the extent practicable.
36	Use flow control structures such as swales, retention/detention areas, and/or cisterns to maintain the existing (pre-project) peak runoff.
37	Direct downspouts to swales or gardens instead of storm drain inlets.
38	Use flow dissipaters at runoff inlets (e.g., culvert drop-inlets) to reduce the possibility of channel scour at the point of flow entry.
39	Minimize alterations to existing contours and slopes, including grading the minimum area necessary.

AQUATIC AVOIDANCE AND MINIMIZATION MEASURES	
40	Maintain native shrubs, trees and groundcover whenever possible and revegetate disturbed areas with local native or non-invasive plants.
42	Use flow control structures, permeable pavement, cisterns, and other runoff management methods to ensure no change in post-construction peak runoff volume from pre-project conditions for all covered activities with more than 5,000 square feet of impervious surface.
49	The project or activity must be designed to avoid the removal of riparian vegetation, if feasible. If the removal 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.
51	All projects will be conducted in conformance with applicable County and/or city drainage policies.
53	When possible, maintain a vegetated buffer strip between staging/excavation areas and receiving waters.
54	When not within the construction footprint, deep pools within stream reaches shall be maintained as refuge for fish and wildlife by constructing temporary fencing and/or barrier so as to avoid pool destruction and prevent access from the site.
58	Existing access routes and levee roads shall be used if available to minimize impacts of new construction in special status species habitats and riparian zones.
	Construction
61	Minimize ground disturbance to the smallest area feasible.
62	Use existing roads for access and disturbed area for staging as site constraints allow. Off-road travel will avoid sensitive communities such as wetlands and known occurrences of covered plants.
63	Prepare and implement sediment erosion control plans.
64	No winter grading unless approved by City Engineer and specific erosion control measures are incorporated.
65	Control exposed soil by stabilizing slopes (e.g., with erosion control blankets) and protecting channels (e.g., using silt fences or straw wattles).
66	Control sediment runoff using sandbag barriers or straw wattles.
67	No stockpiling or placement of erodible materials in waterways or along areas of natural stormwater flow where materials could be washed into waterways.
68	Stabilize stockpiled soil with geotextile or plastic covers.
69	Maintain construction activities within a defined project area to reduce the amount of disturbed area.
70	Only clear/prepare land which will be actively under construction in the near term.
71	Preserve existing vegetation to the extent possible.
72	Equipment storage, fueling and staging areas will be sited on disturbed areas or non-sensitive habitat outside of a stream channel.
74	Stabilize site ingress/egress locations.
75	Dispose of all construction waste in designated areas and prevent stormwater from flowing onto or off of these areas.
76	Prevent spills and clean up spilled materials.
83	Sediments will be stored and transported in a manner that minimizes water quality impacts. If soil is stockpiled, no runoff will be allowed to flow back to the channel.
84	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. Fiber rolls used for erosion control will be certified as free of noxious weed seed. Filter fences and mesh will be of material that will not entrap reptiles and amphibians. Erosion control measures will be placed between the outer edge of the buffer and the project site.
85	Seed mixtures applied for erosion control will not contain invasive nonnative species and will be composed of native species or sterile nonnative species. If sterile nonnative species are used

AQUATIC AVOIDANCE AND MINIMIZATION MEASURES	
	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.
87	Vehicles operated within and adjacent to streams will be checks and maintained daily to prevent leaks of materials that, if introduced to the water could be deleterious to aquatic life.
88	Vehicles and equipment will be parked on pavement, existing roads, and previously disturbed areas.
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.
94	Personnel shall use existing access ramps and roads if available. If temporary access points are necessary, they shall be constructed in a manner that minimizes impacts to streams.
95	To prevent inadvertent entrapment of animals during excavation, all excavated, steep-walled holes or trenches more than 2-feet deep will be covered at the close of each working day by plywood or similar materials, or provided with one or more escape ramps constructed of earth fill or wooden planks.
96	Isolate the construction area from flowing water until project materials are installed and erosion protection is in place.
97	Erosion control measures shall be in place at all times during construction. Do not start construction until all temporary control devices (straw bales, silt fences, etc.) are in place downstream of project site.
	Post-Construction
100	Potential contaminating materials must be stored in covered storage areas or secondary containment that is impervious to leaks and spills
101	Runoff pathways shall be free of trash containers or trash storage areas. Trash storage areas shall be screened or walled
102	Immediately after project completion and before close of seasonal work window, stabilize all exposed soil with mulch, seeding, and/or placement of erosion control blankets.
103	All disturbed soils will be revegetated with native plants and/or grasses or sterile nonnative species suitable for the altered soil conditions upon completion of construction. 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. All disturbed areas that have been compacted shall be de-compacted prior to planting or seeding. Cut-and-fill slopes will be planted with local native or non-invasive plants suitable for the altered soil conditions.
104	Measures will be utilized on site to prevent erosion along streams (e.g., from road cuts or other grading), including in streams that cross or are adjacent to the project proponent's property. Erosion control measures will utilize natural methods such as erosion control mats or fabric, contour wattling, brush mattresses, or brush layers. For more approaches and detail, please see the *Bank Protection/Erosion Repair Design Guide* in the Santa Clara Valley Water Resources Protection Collaborative's *User Manual: Guidelines & Standards for Land Use Near Streams* (Santa Clara Valley Water Resources Protection Collaborative 2006
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.
115	All construction pipes, culverts, or similar structures with a diameter of 4 inches or greater that are stored at a construction site for one or more overnight periods will be thoroughly inspected for wildlife by properly trained construction personnel before the pipe is subsequently buried, capped, or otherwise used or moved in anyway.

SOURCE: ICF International, 2012.

Section 3. Environmental Evaluation

Initial Study Checklist

In accordance with CEQA, the following Initial Study Checklist is an analysis of the Project's potential environmental effects to determine whether an Environmental Impact Report is needed. Answers to the checklist items provide factual evidence and Valley Water rationale for determinations of the potential significance of impacts resulting from the proposed Project.

The Initial Study checklist shows that the proposed Project may have potentially significant effects on biological resources, hazardous materials, noise, and traffic. Mitigation measures have been prescribed for the Project to reduce such effects to less-than-significant levels. Therefore, the proposed Mitigated Negative Declaration is consistent with CEQA Guidelines §15070.

Background

1.	**Project Title**	Vasona Pump Station Upgrade Project
2.	**Lead Agency Name and Address**	Santa Clara Valley Water District (Valley Water) 5750 Almaden Expressway San Jose CA 95118
3.	**Contact Person and Phone Number**	Kelly White, Associate Environmental Planner (408) 630-2840
4.	**Project Location**	Vasona Pump Station 14545 Oka Road Los Gatos, California 95032
5.	**Project Sponsor's Name and Address**	Santa Clara Valley Water District (Valley Water) 5750 Almaden Expressway San Jose CA 95118
6.	**General Plan Designation**	Low Density Residential Neighborhood Commercial
7.	**Zoning**	R-1:8: Residential CM-Neighborhood Commercial
8.	**Description of the Project**	The Project would modernize key electrical, mechanical, and control equipment at the VPS that has reached the end of its useful life, increase the operational flexibility and reliability of the Valley Water supply system to meet anticipated future treated water demand.
9.	**Surrounding Land Uses and Setting**	Commercial, single family residential, and multi-family residential land uses; State Route 85; Los Gatos Creek.

10.	**Other public agencies whose approval is required**	• Town of Los Gatos – Tree Removal Permit • Santa Clara Valley Habitat Agency – compliance with Valley Habitat Plan • Bay Area Air Quality Management District – Authority to Construct (A/C) permit and Permit to Operate (P/O) for backup generators. • Santa Clara County Hazardous Materials Compliance Division – compliance with Aboveground Petroleum Storage Act (APSA) program. • Santa Clara County Fire Department – compliance with Hazardous Materials Business Plan (HMBP) program.
11.	**Have California Native Americans affiliated with the Project area requested consultation pursuant to Public Resources Code Section 21080.3.1? If so, has consultation begun?**	No, California Native American tribes culturally affiliated with the Project area have requested consultation pursuant to PRC Section 21080.3.1.

Environmental Factors Potentially Affected

The environmental factors checked below would be potentially affected by this Project, involving at least one impact that is a "Potentially Significant Impact" as indicated by the checklist on the following pages.

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

Determination

On the basis of this initial evaluation:

I find that the proposed Project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION would be prepared.	
I find that although the proposed Project could have a significant effect on the environment, there would not be a significant effect in this case because revisions in the Project have been made by or agreed to by the Project proponent. A MITIGATED NEGATIVE DECLARATION would be prepared.	X
I find that the proposed Project MAY have a significant effect on the environment and an ENVIRONMENTAL IMPACT REPORT is required.	
I find that the proposed Project MAY have a "potentially significant impact" or "potentially significant unless mitigated" impact on the environment, but at least one effect (1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and (2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.	
I find that although the proposed Project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier EIR or NEGATIVE DECLARATION pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier EIR or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the proposed Project, nothing further is required.	

Signed by:

DFAA488CB212415...

Signature

12/14/2024

Date

Rick L. Callender, Esq.
Chief Executive Officer

I. Aesthetics

Would the Project:	**Potentially Significant Impact**	**Less Than Significant With Mitigation Incorporated**	**Less Than Significant Impact**	**No Impact**
a. Have a substantial adverse effect on a scenic vista?			X	
b. Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?			X	
c. In nonurbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from publicly accessible vantage point). If the Project is in an urbanized area, would the Project conflict with applicable zoning and other regulations governing scenic quality?				X
d. Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?			X	

Regulatory Framework

At the State level, aesthetic values are preserved through the establishment of State parks and preserves, and through the California Scenic Highway Program. There are no State parks or preserves, nor State-designated scenic highways near the Project Site.

Although local jurisdictions are not required to address visual resources as a separate topic in their general plans, several of the required general plan elements—including land use, conservation, and open space—relate indirectly to the aesthetic issues faced by communities as they manage their growth. General plans may also contain additional elements on topics of concern to the local community; common themes that bear on aesthetics and visual resources include recreation and parks, community design, and heritage or cultural resources.

The Town of Los Gatos General Plan identifies important aesthetic resources within the Town's General Plan area, which encompasses the VPS. A scenic vista is generally defined in the General Plan as a public view of important aesthetic resources.

The Town of Los Gatos' General Plan identifies the Santa Cruz Mountains, Sierra Azul Ridge, historic buildings, and the general wooded nature of the Town, as important aesthetic resources within its plan area. The Town's General Plan identifies historic districts and structures within the jurisdictional limits of the Town as important scenic resources. Likewise, wooded areas, such as those associated with Los Gatos Creek, are considered scenic resources.

Existing Conditions

The Project Site has been developed as a public utility adjacent to Los Gatos Creek since 1975. The Project Site and adjacent parcels are generally level. The perimeter of the VPS has mature trees which visually screen the VPS from the adjacent residences, and blend with the riparian vegetation along the adjacent Los Gatos Creek corridor located on the northern boundary of the Project Site. The Project Site is largely obscured from adjacent residences and nearby street views by the perimeter fencing and vegetative screening. The proposed location of the Project is not highly visible from public vantage points, such as the nearby freeways and public roads. There are no designated or eligible state scenic highways nearby. The visibility of the Project location from off-site public vantage points is effectively buffered by existing trees and fencing, the gated and recessed driveway access, low terrain, existing low-profile structures, and setback distances from the existing site improvements. Therefore, public views of the VPS from off-site vantage points are limited. From the elevated vantage points along the adjacent freeways, glimpses of the tops of existing buildings, trees, and open areas are visible and blend aesthetically with the wooded riparian corridor associated with Los Gatos Creek. The VPS does not include riparian vegetation or surface water associated with Los Gatos Creek. The adjacent Los Gatos Creek is physically separated from the VPS facility by the Valley Water maintenance road and fencing. The Project would not impact the riparian vegetation along the Los Gatos Creek corridor. See **Figure 6** and **Figure 7** for photographs of the Project Site and Off-site Staging Area.

Discussion

(a-b) Less Than Significant Impact. The proposed Project would not introduce any elements to the setting that are not already present, minimizing any potential for visual effects. Implementation of the Project would result in limited permanent changes aboveground that would be consistent with the industrial nature of the other structures at the site, and that would not be highly visible from off-site vantage points. The Project would result in the installation of an approximately 20-foot-high enclosure for the new 1,250 kW diesel standby generator southeast of the VPS Pump Building and low-profile above ground electrical equipment adjacent to existing structures.

No riparian vegetation associated with Los Gatos Creek, or any other vegetation outside of the perimeter fencing of the VPS, would be removed. However, based on conceptual project design, up to three ornamental trees of 3- to 5-inch diameter at breast height and possibly other perimeter landscaping located within the fenced Project Site may need to be removed for construction access. The species of the trees that could require removal are Holm oak (*Quercus ilex*), Chinese pistachio (*Chinese pistache*), and Privet (*Ligustrum*). However, since these three trees are obscured by much larger, mature trees that surround the site, removal of these three trees would not adversely affect the aesthetics of the VPS site or adjacent areas. Any perimeter vegetation that currently serves to visually screen the site would be replanted and/or allowed to re-establish naturally after construction is complete.

With voluntary compliance with the Los Gatos Tree Protection Ordinance and the restoration of any perimeter vegetation impacted by construction, permanent public views of the VPS would be essentially unchanged when compared to existing conditions.

The VPS is not located near a designated or eligible State-scenic highway. The nearest eligible scenic State highway is Highway 9. The Project Site is not visible from this highway. Structures on the Project Site were built after 1975 and are not considered historic and the Project Site is not visible from historic areas in the Town of Los Gatos. No rock outcroppings or historic buildings are located on or adjacent to the Project Site. Rock outcroppings at the Off-site

Staging Area would not be disturbed during Project construction. Impacts to scenic vistas and scenic resources would be less than significant.

(c) No Impact. The Project Site is a developed industrial water utility site. The Project would not change the land use of the Project Site or any other site. Operations of the Project Site are subject to a conditional use permit issued by the Town of Los Gatos. Valley Water would comply with the conditions of approval of the conditional use permit as well as the Town's Tree Ordinance when implementing the Project. No impact related to conflicts with applicable zoning or other regulations governing scenic quality would result.

(d) Less Than Significant Impact. There would be no new substantive additional temporary or permanent light sources resulting from the Project during construction or after construction, respectively. There would be new temporary sources of light associated with security lighting at the on-site staging area and Off-site Staging Area during construction. However, this temporary lighting would be directed at the staging areas and would not create a substantial new source of light or glare for nearby residences.

Permanent, low-voltage downlit security lighting would be installed over the enclosure for the new 1,250 kW diesel standby generator. However, the replacement and/or reestablishment of any vegetation removed from the Project Site perimeter during construction would effectively buffer views of the low-voltage downlit lighting from off-site vantage points (see **Figure 4** and **Figure 5**).

Therefore, the temporary and permanent new light sources resulting from Project implementation would not be substantial and the impact is considered less than significant.

Mitigation Measures

No mitigation measures needed.

II. Agriculture and Forestry Resources

Would the Project:	**Potentially Significant Impact**	**Less than Significant With Mitigation Incorporated**	**Less Than Significant Impact**	**No Impact**
a. Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?				X
b. Conflict with existing zoning for agricultural use, or a Williamson Act contract?				X
c. Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?				X
d. Result in the loss of forest land conversion of forest land to non-forest use?				X
e. Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland to non-agricultural use or conversion of forest land to non-forest use?				X

Discussion

(a) No Impact. The California Department of Conservation (CDC) maps important farmlands throughout California as part of the Farmland Mapping and Monitoring Program (FMMP). Important farmlands are classified based on soil conditions and current land use. The classifications, organized from most suitable for agriculture to least suitable, are: Prime Farmland, Farmland of Statewide Importance, Unique Farmland, Farmland of Local Importance, and Grazing Land.

The VPS and surrounding properties are not classified as important farmland; these parcels are mapped as Urban and Built-Up Land (CDC, 2018). Project implementation would not change any land uses and the Project would have no effect on important farmland. No impact associated with the conversion of important farmland to non-agricultural uses would result.

(b) No Impact. The California Land Conservation Act, also known as the Williamson Act, is California's primary program for the conservation of private land for agricultural and open space uses. The Williamson Act allows jurisdictions to contract with private landowners to limit the use of private land to agriculture or open space uses in exchange for reduced property taxes. The CDC tracks and maps lands under Williamson Act contracts. The Project Site and Off-site Staging Area are not under Williamson Act contracts. No impact on Williamson Act contracts would result.

(c-d) No Impact. The Project Site was developed and has been operated as a utility since 1975. The Project would not change the land use or zoning. No impact associated with conflicts with zoning for forest land or timberland, or conversion of forest land and timberland to non-forest uses would result.

(e) No Impact. Implementation of the Project would update outdated equipment, increase the operational flexibility and reliability of Valley Water's water supply system, improve Valley Water's ability to meet the anticipated future demand for treated water, and reduce the risk of equipment failure and service outages.

The future anticipated demand for treated water in the County is based on the approved growth of the local jurisdictions that comprise the County. The growth inducement potential and associated secondary effects of growth associated with meeting the future anticipated demand for treated water in Santa Clara County was evaluated in the General Plan EIRs of the local jurisdictions. The local jurisdictions are served by Valley Water's municipal and private wholesale water customers. Although the secondary impacts of growth can sometimes result in changes in land use, the direct and indirect impacts of the approved growth were examined at a sufficient level in the General Plan EIRs, and no additional review is warranted or necessary.

The Project would not result in any other changes to the existing environment which, due to their location or nature, could result in conversion of Farmland to non-agricultural use or conversion of forest land to non-forest use. No impact would result.

Mitigation Measures

No mitigation measures needed.

III. Air Quality

Would the Project:	**Potentially Significant Impact**	**Less than Significant with Mitigation Incorporated**	**Less Than Significant Impact**	**No Impact**
a. Conflict with or obstruct implementation of the applicable air quality plan?				X
b. Result in a cumulatively considerable net increase of any criteria pollutant for which the Project region is non-attainment under an applicable federal or state ambient air quality standard?		X		
c. Expose sensitive receptors to substantial pollutant concentrations?		X		
d. Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?			X	

The following discussion is based on the *Vasona Pump Station Upgrade Air Quality Technical Report* (RCH Group, 2024) (**Appendix A**).

Regulatory Framework and Existing Conditions

<u>Federal and State Ambient Air Quality Standards</u>

The federal Clean Air Act is implemented by the U.S. Environmental Protection Agency (USEPA). The USEPA sets federal ambient air quality standards for six criteria air pollutants: particulate matter of aerodynamic radius of 10 micrometers or less (coarse particulate or PM_{10}), particulate matter of aerodynamic radius of 2.5 micrometers or less (fine particulate or $PM_{2.5}$), carbon monoxide (CO), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), ground-level ozone, and lead. Particulate matter and ground-level ozone from nitrogen oxides (NO_x) and volatile organic compounds (VOC), as reported as reactive organic compounds or ROG, due to processes such as combustion and use of paints and aerosols pose the greatest threats to human health. The standards are designed to protect the health and welfare of the populace with a reasonable margin of safety. Greenhouse gas (GHG) emissions are discussed in Section 3-VIII, Greenhouse Gas Emissions.

The California Air Resources Board (CARB), which is a part of the California Environmental Protection Agency, is responsible for the coordination and administration of both federal and state air pollution control programs within California. CARB sets the California ambient air quality standards, compiles emission inventories, develops suggested control measures, provides oversight of local programs, and prepares State Implementation Plans (SIP) that identify specific measures to reduce air pollutants. The state standards are more stringent than the federal standards and include the following additional contaminants: visibility-reducing particles, hydrogen sulfide, sulfates, and vinyl chloride.

The CARB and USEPA designate air basins where state and federal ambient air quality standards are exceeded as “nonattainment” areas. If standards are met, the air basin is designated as an “attainment” area. If there is inadequate or inconclusive data to make a definitive attainment designation, they are considered “unclassified.” The USEPA requires each state with federal nonattainment areas to prepare and submit a SIP that identifies specific measures to reduce pollutants and attain the federal standards.

The Project is located in the San Francisco Bay Area Air Basin (SFBAAB). **Table 6** shows the current attainment status of the SFBAAB for the state and federal ambient air quality standards. CARB has classified the SFBAAB as nonattainment for ozone, PM_{10}, and $PM_{2.5}$ under the state standards; the USEPA has designated the San Francisco Bay Area as nonattainment for ozone and $PM_{2.5}$ under the federal standards.

Table 6: San Francisco Bay Area Air Basin Designation Status

Contaminant	Averaging Time	Concentration	State Designation Status	Federal Designation Status
Ozone	1-hour	0.09 ppm	N	—
	8-hour	0.070 ppm	N	N
Carbon Monoxide	1-hour	20 ppm	A	—
		35 ppm	—	U/A
	8-hour	9.0 ppm	A	U/A
Nitrogen Dioxide	1-hour	0.18 ppm	A	—
		0.100 ppm	—	U
	Annual arithmetic mean	0.030 ppm	A	—
		0.053 ppm	—	A
Sulfur Dioxide	1-hour	0.25 ppm	A	—
		0.075 ppb	—	A/U
	24-hour	0.04 ppm	A	—
PM_{10}	24-hour	50 µg/m^3	N	—
		150 µg/m^3	—	U
	Annual arithmetic mean	20 µg/m^3	N	—
$PM_{2.5}$	24-hour	35 µg/m^3	—	N
	Annual arithmetic mean	12 µg/m^3	N	U/A
Lead	3-month rolling average	0.15 µg/m^3	—	U/A
	30-day average	1.5 µg/m^3	A	—

SOURCE: BAAQMD, 2022. *2022 Air Quality CEQA Guidelines*.

KEY: A = attainment, N = non-attainment, U = unclassified, — = not applicable or no data available.

µg/m3 = micrograms per cubic meter, ppm = parts per million

San Francisco Bay Area Air Basin

The SFBAAB in which the Project is located encompasses Santa Clara, San Mateo, Marin, Napa, Contra Costa, and Alameda counties. The Bay Area Air Quality Management District (BAAQMD) manages air quality in the SFBAAB and is the regional agency primarily responsible for monitoring pollutant concentrations and regulating pollutant emissions. BAAQMD has permitting authority over stationary sources of air emissions and prepares air quality management plans to improve air quality in the basin and achieve state and federal air quality standards.

BAAQMD 2017 Air Quality Plan

The BAAQMD's *2017 Air Quality Plan* (*Spare the Air, Cool the Climate Plan*) is the most recent air quality management plan and includes a wide range of control measures designed to decrease emissions of air pollutants such as particulate matter, ozone, and toxic air contaminants. The 85 control measures in the *2017 Clean Air Plan* are grouped into the following categories:

- Stationary Source Control Measures
- Mobile Source Control Measures
- Transportation Control Measures
- Energy Control Measures
- Building Control Measures
- Agricultural Control Measures
- Natural and Working Lands Control Measures
- Waste Management Control Measures
- Water Control Measures
- Super GHG Control Measures

BAAQMD 2022 CEQA Air Quality Guidelines

BAAQMD's *2022 CEQA Air Quality Guidelines* (BAAQMD, 2022) provides comprehensive guidance on evaluating, determining the significance of, and mitigating the air quality and climate impacts of land use projects and plans in the SFBAAB. The BAAQMD's project-level air quality CEQA significance thresholds are presented in **Table 7**.

Table 7: BAAQMD Air Quality Thresholds of Significance (Project-Level)

	Construction Related[1]	**Operational**	
Criteria Air Pollutants and Precursors			
Pollutant	**Average Daily Emissions (lb/day)**	**Average Daily Emissions (lb/day)**	**Maximum Annual Emissions (tons/year)**
ROG	54	54	10
NO_x	54	54	10
PM_{10}	82 (exhaust)	82	15
$PM_{2.5}$	54 (exhaust)	54	10
PM_{10}/$PM_{2.5}$ (fugitive dust)	Best Management Practices[2]	None	
Local CO	None	9.0 ppm (8-hour average), 20.0 ppm (1-hour average)	
Local Risks and Hazards			
Risks and hazards for new sources and receptors (cumulative threshold)	Same as operational thresholds	Cancer Risk: > 100 in a million (from all local sources)	*OR* Compliance with Qualified Community Risk Reduction Plan
		Non-cancer: > 10.0 Hazard Index (chronic, from all local sources)	

Construction Related[1]		Operational	
		$PM_{2.5}$: increase > 0.8 μg/m^3 annual average (from all local sources)	
Risks and hazards for new sources and receptors (individual project)	Same as operational thresholds	Increased Cancer Risk: > 10 in a million	*OR* Compliance with Qualified Community Risk Reduction Plan
		Increased Non-cancer: > 1.0 Hazard Index (chronic or acute)	
		$PM_{2.5}$ increase: > 0.3 μg/m^3 annual average	
Accidental Release of Acutely Hazardous Air Pollutants			
	None	Storage or use of acutely hazardous materials locating near receptors or new receptors locating near stored or used acutely hazardous materials considered significant	
Odors			
	None	Five (5) confirmed complaints per year averaged over three (3) years.	

SOURCE: BAAQMD, 2022. *CEQA Air Quality Guidelines*.

1 For construction projects that require less than 1 year to complete, BAAQMD recommends that lead agencies annualize impacts over the scope of actual days that peak impacts would occur rather than over the full year. Additionally, for phased projects that results in concurrent construction and operational emissions, construction-related exhaust emissions should be combined with operational emissions for all phases where construction and operations overlap.

2 PM_{10}/$PM_{2.5}$ (fugitive dust) is also recognized to impact local communities. BAAQMD strongly recommends implementing all feasible fugitive dust BMPs when construction projects are located near sensitive communities, including schools, residential areas, or other sensitive land uses.

Sensitive Receptors

Those who are considered sensitive to air pollution include children, the elderly, and persons with pre-existing respiratory or cardiovascular illness. Therefore, sensitive receptors are defined as residential uses, schools, daycare centers, nursing homes, and medical centers. The nearest sensitive receptors to the VPS are the adjacent single-family residences at Mozart Avenue (40 feet away) and Mojonera Court (40 feet away) and the multi-family residential units on the north side of Los Gatos Creek, adjacent to the off-site staging area (60 feet away).

Discussion

Short-term construction emissions and long-term operational emissions related to the Project were evaluated in accordance with the BAAQMD *2022 CEQA Air Quality Guidelines.* The air quality analysis focuses on daily and annual emissions from construction and operational activities. California Emissions Estimator Model (CalEEMod) Version 2022.1.1.28 was used to estimate the construction and operational emissions.

CalEEMod is a statewide land use emissions computer model designed to provide a uniform platform for government agencies, land use planners, and environmental professionals to quantify potential criteria pollutant emissions associated with both construction and operations from a variety of land use projects. The model quantifies direct emissions from construction and operation activities (including vehicle use), as well as indirect emissions, such as GHG emissions from energy use, solid waste disposal, vegetation planting and/or removal, and water use.

(a) No Impact. An air quality plan refers to clean air plans, ozone plans, and other air quality plans developed by BAAQMD. The *2017 Bay Area Clean Air Plan* (*2017 Clean Air Plan*) is the most recent clean air plan adopted by BAAQMD. The *2017 Clean Air Plan* includes a wide range of control measures designed to decrease emissions of air pollutants such as particulate matter, ozone, and toxic air contaminants; reduce GHG emissions of methane and other "super-GHGs" in the near-term; and decrease GHG emissions by reducing fossil fuel combustion in the long-term.

To determine consistency with the *2017 Clean Air Plan*, BAAQMD recommends Lead Agencies analyze their projects with respect to three questions. If all questions are concluded in the affirmative, and the conclusions are supported by substantial evidence, a project is considered consistent. Applying the BAAQMD's guidelines, the plan consistency analysis for the VPS Upgrade Project is as follows:

1. Would the Project support the Plan's primary goals?
2. Does the Project include applicable control measures from the Plan?
3. Would the Project disrupt or hinder implementation of any control measures in the Plan?

The primary goals of the *2017 Clean Air Plan* are to protect public health and protect the environment. The Project would support these primary goals because the Project's construction-related and operational emissions are below the 2022 BAAQMD CEQA significance thresholds (see discussion of checklist item b, below).

The Project includes applicable control measures from the *2017 Clean Air Plan* and would not disrupt or hinder implementation of the *2017 Clean Air Plan* control measures.

- *Mobile* Source *Measures.* These measures promote lower emission vehicles and equipment. These measures are aimed at reducing ozone precursor emissions (ROGs and NO_x) from mobile sources. Consistent with the California Airborne Toxic Control Measure (Title 13, Section 2485 of the CCR), implementation of Valley Water standard **BMP AQ-1 (BAAQMD Dust Control Measures)** would limit construction vehicle idling to 5 minutes or less. Thus, applicable control measures are included in the Project and the Project would not disrupt or hinder implementation of any Mobile Source Measures.

- Stationary *Source Control Measures*. The Stationary Source Control Measures aim to protect public health by reducing emissions of criteria pollutants and TACs. Stationary Source Control Measure 32 (SS32), Emergency Backup Generators, is aimed at reducing emissions of diesel PM from backup generators. As indicated in Section 2, Project Description, under *Future Operations and Maintenance*, the new 1,250 kW diesel standby generator would be Tier-4 rated (technology that reduces emissions of PM and NO_x by approximately 90 percent). Thus, applicable control measures are included in the Project and the Project would not disrupt or hinder implementation of any Stationary Source Control Measures.

- *Land Use and Local Impacts Measures.* These measures are aimed at promoting mixed-use, infill development to reduce vehicle travel and emission, as well as protecting people from exposure to air pollution from stationary and mobile sources of emissions. The Land Use and Local Impacts Measures do not apply to the Project because the Project is not a land use development project, would have no effect on land use, and would not induce growth. In addition, the Project would not disrupt or hinder implementation of any Land Use and Local Impacts Measures.

- *Energy* and *Climate Measures.* These measures promote energy efficiency and conservation to reduce the amount of fossil fuel needed to produce electricity. The Project is consistent with Energy Control Measure 1 (ECM1) because the proposed facility upgrades and improvements incorporate the latest energy-efficient technologies. Thus, applicable measures are included in the Project and the Project would not disrupt or hinder implementation of any Energy and Climate Measures.

Implementation of the Project would not conflict with or disrupt implementation of the *2017 Clean Air Plan*. No impact would result.

(b) Less than Significant with Mitigation. To determine if the Project would result in a cumulatively considerable net increase of any criteria pollutant for which the region is nonattainment under an applicable federal or state ambient air quality standard, the Project's construction and operational emissions were estimated using CalEEMod and compared to the BAAQMD's 2022 CEQA significance thresholds.

Construction Emissions

As shown in **Table 6**, the VPS is located within an area that is nonattainment for ozone, PM_{10}, and $PM_{2.5}$. During Project construction, the use of heavy construction equipment, truck trips from hauling materials, and vehicle trips from construction workers traveling to and from the Project Site would emit air pollutants for which the SFBAAB is nonattainment:

- Mobile-source emissions, primarily NO_X, would be generated by equipment such as excavators, bulldozers, loaders, forklifts pavers and graders during demolition and excavation activities.
- Carbon dioxide (CO_2) emissions generated by air compressors.
- Paving operations and the application of architectural coatings (i.e., paints) and other building materials would release ROG.
- Construction activities would also generate fugitive dust that would contribute fine particulate matter into the local atmosphere.

The assessment of construction-related air quality impacts considers each of these sources and recognizes that construction emissions can vary substantially from day to day, depending on the level of activity, the specific type of equipment, and for dust, the prevailing weather conditions. Although construction would most likely be broken down into three 6-month phases, for a total of 18 months of construction, the emissions modeling is based on the conservative assumption that Project construction would occur over 18 consecutive months.

Using standard fuel consumption estimates, Project construction activities would require approximately 32,485 gallons of diesel fuel and 335 gallons of gasoline fuel (USEIA, 2023).

Consistent with the BAAQMD 2022 CEQA Air Quality Guidelines, the reported PM10 and PM2.5 emissions are related to combustion exhaust only. Nevertheless, construction-related activities, such as ground disturbance and grading, can also result in fugitive dust emissions. For a project to have a less-than-significant air quality impact related to construction-related fugitive dust emissions, the project must implement the nine BAAQMD Basic BMPs for Construction-Related Fugitive Dust Emissions (Table 5-2 of the BAAQMD 2022 CEQA Air Quality Guidelines). Valley Water's standard **BMP AQ-1 (BAAQMD Dust Control Measures)** includes most, but not all, of the BAAQMD's nine Basic BMPs. Thus, even with implementation of **BMP AQ-1 (BAAQMD Dust Control Measures)**, the Project's impact related to fugitive dust emissions during construction would be considered potentially significant. However, with implementation of **Mitigation Measure MM AQ-1 (Use Additional Dust Control Measures**), which includes the rest of BAAQMD's Basic BMPs for Construction-Related Fugitive Dust Emissions, the impact related to fugitive dust emissions during construction would be reduced to a less-than-significant level.

Table 8 presents the Project's estimated average daily construction exhaust emissions (i.e., total construction period emissions divided by the anticipated number of construction days) and compares them to the 2022 BAAQMD significance thresholds for construction exhaust emissions. As indicated in the table, all of the Project's construction-related exhaust emissions would be below the BAAQMD significance thresholds. Thus, the Project's impact related to a cumulatively considerable increase in criteria pollutant exhaust emissions during construction would be less than significant.

Although mitigation is not needed to reduce the Project's impact related to a cumulatively considerable increase in criteria pollutant exhaust emissions during construction to a less-than-significant level, as explained below in the analysis for checklist item c, mitigation of the Project's construction-related exhaust emissions associated with diesel-powered engines is required to reduce the health effects of carcinogenic air toxics at the closest sensitive receptors. This would be accomplished through implementation of Mitigation Measure MM AQ-2 (Use Tier 4 Construction Equipment), which would reduce ROG, NOx, PM_{10}, and $PM_{2.5}$ emissions. The mitigated emissions are shown in **Table 8**. Note that mitigated CO emissions are greater than the unmitigated CO emissions due to control technologies that are focused on reducing ROG, NOx, PM_{10}, and $PM_{2.5}$ emissions, which have a reverse effect on CO emissions.

Table 8: Construction-Related Exhaust Emissions

	Pollutant Emissions (pounds/day)					
	ROG	**NO_x**	**PM_{10}[1]**	**$PM_{2.5}$[1]**	**CO[1]**	**SO_2[1]**
Project Construction (Unmitigated)	0.96	8.98	0.31	0.28	11.1	0.02
BAAQMD Significance Threshold	54	54	82	54	—	—
Potentially Significant? (Yes or No)	**No**	**No**	**No**	**No**	**—**	**—**
Project Construction (Mitigated)[3]	0.27	3.97	0.04	0.04	12.1	0.01

SOURCE: *Vasona Pump Station Upgrade Air Quality Technical Report* (RCH Group, 2024) (**Appendix A**)

1 PM_{10} and $PM_{2.5}$ values are combustion exhaust only.

2 BAAQMD does not have construction screening thresholds for either CO or SO_2.

3 Mitigated exhaust emissions represent emissions reductions needed to reduce the cancer risk from Project construction activities to a less-than-significant level (see discussion of checklist item c, below).

Operational Emissions

CalEEMod was also used to estimate long-term operational air emissions from the Project. An existing 50 kW (67 hp) natural gas standby generator that provides limited power for logistical controls and communications equipment during power outages is to be replaced with a 100 KW (134 hp) natural gas standby generator. A new 1,250 kW (1,676 hp) diesel standby generator would provide backup power for the new pumps and other critical equipment in the event of power interruptions. The natural gas and diesel standby generators would be tested monthly for two (2) hours (or 24 hours per year). It was assumed that the natural gas and diesel standby generators would also be operated for 76 hours a year during power outages. Thus, it was assumed that the natural gas and diesel standby generators would operate for a total of 100 hours per year.[1] The new 1,250 kW diesel standby generator would be Tier-4 rated.

Based on the CalEEMod results and standard fuel conversion factors, Project-related operations would require approximately 6,485 gallons of diesel fuel per year (USEIA, 2023). Because the natural gas backup generator would be used to provide limited power to critical motor control and communications equipment during electrical outages, the amount of natural gas that would be required annually to operate the natural gas generator would be minimal.

Table 9 presents the Project's estimated daily and annual operational emissions of ROG, NO_x, CO, SO_2, PM_{10}, and $PM_{2.5}$. As indicated in the table, the Project's operational emissions would not exceed the 2022 BAAQMD significance thresholds. Thus, the impact related to cumulatively considerable increases in criteria pollutant emissions during Project operations would be less than significant. No mitigation is required.

Table 9: Average Daily and Maximum Annual Operational Exhaust Emissions

	ROG	NOx	PM_{10}	$PM_{2.5}$	CO	SO_2
			Pollutant Emissions (in pounds/day)			
Stationary Source Emissions	6.68	24.7	0.82	0.82	17.1	0.03
BAAQMD Significance Threshold	54	54	82	54	—	—
			Pollutant Emissions (in tons/year)			
Stationary Source Emissions	0.17	0.62	0.02	0.02	0.43	<0.01
BAAQMD Significance Threshold	10	10	15	10	—	—
Potentially Significant? (Yes or No)	**No**	**No**	**No**	**No**	**—**	**—**

<u>SOURCE</u>: *Vasona Pump Station Upgrade Air Quality Memorandum* (RCH Group, 2024) (**Appendix A**)
<u>NOTE</u>: BAAQMD does not have operational screening thresholds for either CO or SO_2.

In conclusion, with respect to exhaust emissions, for all criteria pollutants for which the Project region is in nonattainment, the Project's exhaust emissions during both construction and operation would be below the BAAQMD significance thresholds. However, unmitigated, the Project's impact related to fugitive dust emissions during construction would be potentially significant because the Valley Water standard BMPs do not include all nine of the BAAQMD's Basic BMPs for Construction-Related Fugitive Dust Emissions. (All nine BAAQMD Basic BMPs

[1] The BAAQMD's Calculating Potential to Emit for Emergency Backup Power Generators (BAAQMD 2019) recommends that lead agencies include non-testing and non-maintenance (emergency or standby) operations hours, in addition to the permitted testing and maintenance hours for purposes of calculating emissions.

must be implemented for a project's construction-related fugitive dust emissions to be considered less than significant.) Implementation of **Mitigation Measure MM AQ-1 (Use Additional Dust Control Measures**) would ensure the rest of the BAAQMD's Basic BMPs are implemented during construction, thereby reducing the Project's impact related to fugitive dust during construction to a less-than-significant level.

(c) Less Than Significant Impact with Mitigation. For purposes of CEQA, BAAQMD considers sensitive receptors to be land uses associated with the segments of the population that are most susceptible to poor air quality: children, the elderly, and those with pre-existing serious health problems affected by air quality. Examples include residences, schools and school yards, parks and playgrounds, daycare centers, nursing homes, and medical facilities. BAAQMD considers the relevant zone of influence for an assessment of air quality health risks to be within 1,000 feet of a project site. The nearest sensitive receptors to the Project Site are existing single-family and multi-family residences located south, north, and northeast of the VPS, and north of the off-site staging area.

A health risk assessment (HRA) was conducted following methodologies in the California Office of Environmental Health Hazard Assessment (OEHHA)'s *Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments* (OEHHA, 2015). This was accomplished by applying the estimated concentrations at the receptors analyzed to the established cancer risk estimates and acceptable reference concentrations for non-cancer health effects.

The Project would constitute a new emission source of diesel particulate matter (DPM) and $PM_{2.5}$ due to its construction activities and operation of the new diesel standby generator. Studies have demonstrated that DPM from diesel-fueled engines is a human carcinogen and that chronic (long-term) inhalation exposure to DPM poses a chronic health risk.

Health effects from carcinogenic air toxics are usually described in terms of individual cancer risk. Individual cancer risk is the likelihood that a person exposed to air toxic concentrations over a 70-year lifetime will contract cancer, based on the use of standard risk-assessment methodology. The maximally exposed individual represents the worst–case risk estimate, based on a theoretical person continuously exposed for a lifetime at the point of highest compound concentration in the air. This is a highly conservative assumption since most people do not remain at home all day and on average residents change residences every 11 to 12 years. In addition, this assumption assumes that residents are experiencing outdoor concentrations for the entire exposure period.

The HRA analyzes the incremental cancer risks to sensitive receptors in the vicinity of the Project, using emission rates (in pounds per hour) from the construction and operational emissions inventory. DPM (reported as combustion exhaust emissions of $PM_{2.5}$) emission rates were input into the USEPA's AERMOD atmospheric dispersion model to calculate ambient air concentrations at receptors in the Project vicinity.

Construction Emissions

As shown in **Table 10**, the maximum cancer risk from unmitigated Project construction emissions for a residential adult receptor would be 1.5 people out of every 1 million people exposed, and for a residential child receptor would be 32.9 people out of every 1 million people exposed. The maximum exposed individual residence (MEIR) during Project construction is located on Mojonera Court (east of the Project Site). The locations which exceed the BAAQMD threshold extend to approximately 600 feet from the Project Site. Unmitigated, the cancer risk from Project construction activities is anticipated to exceed the BAAQMD threshold for increased cancer risk of 10 people out of every 1 million people exposed. The impact related to increased cancer risk during construction would be potentially significant.

Table 10: Unmitigated Construction Health Impacts at Existing Receptors

	Cancer Risk (child/adult)	Hazard Index	$PM_{2.5}$ Concentration
Unmitigated Project Construction	32.9/1.48	0.03	0.19
BAAQMD Significance Threshold	10.0	1.00	0.30
Potentially Significant (Yes or No)?	**Yes**	**No**	**No**

To reduce the cancer risk during Project construction to a less-than-significant level, Valley Water's construction contractor would be required to implement **Mitigation Measure MM AQ-2 (Use Tier 4 Construction Equipment**), which requires all construction equipment meet USEPA certified "Tier 4 Final" emission standards.

As shown in **Table 11**, with implementation of **Mitigation Measure MM AQ-2 (Use Tier 4 Construction Equipment)**, the maximum cancer risk from Project construction for a residential adult receptor would be 0.2 people for every 1 million exposed, and for a residential child receptor would be 4.4 people for every 1 million exposed. Thus, with implementation of **Mitigation Measure MM AQ-2 (Use Tier 4 Construction Equipment**), the cancer risk from Project construction activities would be reduced to a less than significant level.

Table 11: Mitigated Construction Health Impacts at Existing Receptors

	Cancer Risk (child/adult)	Hazard Index	$PM_{2.5}$ Concentration
Mitigated Project Construction	4.41/0.20	<0.01	0.03
BAAQMD Significance Threshold	10.0	1.00	0.30
Potentially Significant? (Yes or No)	**No**	**No**	**No**

Both acute (short-term) and chronic (long-term) adverse health impacts unrelated to cancer are measured against a hazard index, which is defined as the ratio of the predicted incremental DPM exposure concentration from the Project to a reference exposure level (REL) that could cause adverse health effects. The REL are published by OEHHA based on epidemiological research. The ratio (referred to as the Hazard Quotient [HQ]) of each non-carcinogenic substance that affects a certain organ system is added to produce an overall HI for that organ system. The overall hazard index is calculated for each organ system. The impact is considered to be significant if the overall hazard index for the highest-impacted organ system is greater than 1.0.

There are a cancer potency factor and a chronic hazard index but no acute hazard index associated with DPM. The chronic reference exposure level for DPM was established by the California OEHHA as 5 $\mu g/m^3$. Annual concentrations of DPM greater than 5.0 $\mu g/m^3$ result in a chronic hazard index of greater than 1.0 (i.e., DPM annual concentration/5.0 $\mu g/m^3$).

During Project construction, the unmitigated chronic hazard index would be 0.03 based on a Project-related maximum annual diesel concentration of 0.17 $\mu g/m^3$ (per dispersion modeling analysis) or 0.17 $\mu g/m^3$/5.0 $\mu g/m^3$. Thus, the chronic hazard index would be below the project-level threshold of 1.0 and the Project's impact would be less than significant. Although mitigation is not needed to reduce the hazard index below the threshold, implementation of Mitigation Measure MM AQ-2 (Use Tier 4 Construction Equipment) would reduce the chronic hazard index to less than 0.01.

Dispersion modeling was also used to estimate the exposure of sensitive receptors to Project-related concentrations of $PM_{2.5}$ during construction. The BAAQMD *2022 CEQA Air Quality Guidelines* requires inclusion of $PM_{2.5}$ exhaust and fugitive dust emissions in this analysis. The Project's annual unmitigated $PM_{2.5}$ concentration from construction activities was estimated to be 0.19 $\mu g/m^3$. Since this is below the BAAQMD significance threshold of 0.3 $\mu g/m^3$, the impact related to exposure of sensitive receptors to Project-related concentrations of $PM_{2.5}$ during construction would be less than significant and no mitigation is required.

Operational Emissions

As shown in **Table 12**, the maximum cancer risk from the Project's operational emissions (i.e., operation of the new diesel standby generator during monthly testing and during power outages) for a residential adult receptor would be 1.1 people for every 1 million exposed, and for a residential child receptor would be 3.4 people for every 1 million exposed. Since the cancer risk from Project operations is less than the BAAQMD threshold of 10 people for every 1 million exposed, the impact related to increased cancer risk from Project operations would be less than significant and no mitigation is required.

Table 12: Operational Health Impacts at Existing Receptors

	Cancer Risk (child/adult)	Hazard Index	$PM_{2.5}$ Concentration
Proposed Project Operation	3.44/1.05	<0.01	0.01
Significance Threshold	10.0	1.00	0.30
Potentially Significant (Yes or No)?	**No**	**No**	**No**

In conclusion, with implementation of **Mitigation Measure MM AQ-2 (Use Tier 4 Construction Equipment)** during construction, the total combined cancer risk for residential receptors from Project construction and operations would be 7.9 people for every 1 million people exposed. Since the mitigated construction cancer risk, when combined with the cancer risk from Project operations, would be below the BAAQMD threshold of 10 people for every 1 million people exposed, the impact is less than significant with mitigation.

(d) Less Than Significant Impact. Construction-related odors from the use of diesel-powered construction equipment may be evident in the immediate vicinity of the work area but would disperse rapidly and are unlikely to be detected at adjacent parcels. Although excavation of decaying organic material is not expected during construction, implementation of **BMP AQ-2 (Avoid Stockpiling Odorous Materials)** would ensure that nearby residences are not adversely affected by any stockpiled materials. Similar to odors from the use of diesel-powered construction equipment, diesel fumes generated during monthly testing of the new 1,250 kW diesel standby generator are unlikely to be evident beyond the VPS. The potential for Project construction and operations to generate odors affecting a substantial number of people would be less than significant.

Best Management Practices

BMP AQ-1: BAAQMD Dust Control Measures

The following BAAQMD Dust Control Measures for fugitive dust control measures will be implemented:

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

- All haul trucks transporting soil, sand, or other loose material off-site shall be covered;
- 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;
- Water used to wash the various exposed surfaces (e.g., parking areas, staging areas, soil piles, graded areas, etc.) will not be allowed to enter waterways;
- All vehicle speeds on unpaved roads shall be limited to 15 mph;
- 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;
- 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), and this requirement shall be clearly communicated to construction workers (such as verbiage in contracts and clear signage at all access points);
- All construction equipment shall be maintained and properly tuned in accordance with manufacturer's specifications, and all equipment shall be checked by a certified visible emission evaluator;
- Correct tire inflation shall be maintained in accordance with manufacturer's specifications on wheeled equipment and vehicles to prevent excessive rolling resistance; and,
- Post a publicly visible sign with a telephone number and contact person at the Lead Agency to address dust complaints; any complaints shall be responded to and take corrective action within 48 hours. In addition, a BAAQMD telephone number with any applicable regulations will be included.

BMP AQ-2: Avoid Stockpiling Odorous Materials.

Materials with decaying organic material, or other potentially odorous materials, will be handled in a manner that avoids impacting residential areas and other sensitive receptors, including:

- Avoid stockpiling potentially odorous materials within 1,000 feet of residential areas or other odor sensitive land uses; and
- Odorous stockpiles will be disposed of at an appropriate landfill.

Mitigation Measures

Mitigation Measure MM AQ-1: Additional Dust Control Measures.

Valley Water or its contractor shall implement the following additional BAAQMD Basic BMPs for Construction-Related Fugitive Dust Emissions (BAAQMD 2022 CEQA Air Quality Guidelines, Table 5-2):

- All excavation, grading, and/or demolition activities shall be suspended when average wind speeds exceed 20 mph.

- All trucks and equipment, including their tires, shall be washed off prior to leaving the site.
- Unpaved roads providing access to sites located 100 feet or further from a paved road shall be treated with a 6- to 12-inch layer of compacted layer of wood chips, mulch, or gravel.

<u>Mitigation Measure MM AQ-2: Use Tier 4 Construction Equipment.</u>

Valley Water or its contractor shall implement the following measures during construction to reduce construction exhaust emissions:

All construction equipment larger than 50 horsepower used at the site for more than two continuous days or 20 hours total shall utilize diesel engines that are USEPA certified “Tier 4 Final” emission standards for particulate matter or higher and be equipped with CARB-certified Level 3 Diesel Particulate Filters. Prior to the issuance of any demolition or construction permit, the construction contractor shall submit specifications of the equipment to be used during construction and Valley Water shall confirm this requirement is met.[2]

Equipment such as air compressors, concrete/industrial saws, forklifts, light stands, manlifts, pumps, and welders shall be electric or alternative-fueled (i.e., non-diesel), where feasible. Pole power shall be utilized at the earliest feasible point in time and shall be used to the maximum extent feasible in lieu of generators. If stationary construction equipment, such as diesel-powered generators, must be operated continuously, such equipment must be Tier 4 Final construction equipment or better and located at least 100 feet from sensitive land uses (e.g., residences, schools, childcare centers, hospitals, parks, or similar uses), whenever possible.

At a minimum, require that construction vendors, contractors, and/or haul truck operators commit to using 2010 model year trucks (e.g., material delivery trucks and soil import/export with a gross vehicle weight rating of at least 14,001 pounds), that meet CARB’s 2010 engine emissions standards.

[2] USEPA and CARB have implemented regulations and a tiering system to reduce emissions from off-road equipment with increasing combustion efficiency (i.e., decreasing emissions) where Tier 1 is the least efficient (greatest emissions) and Tier 4 is the most efficient (least emissions). The regulations have been implemented over time such that Tier 1 was phased out in the 1990s and Tier 2 was required, followed by implementation of Tier 3 and Tier 4 by 2015 with a phase out of Tier 2.

IV. Biological Resources

Would the Project:	**Potentially Significant Impact**	**Less than Significant with Mitigation Incorporated**	**Less Than Significant Impact**	**No Impact**
a. Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?		X		
b. Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?			X	
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?			X	
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?			X	
e. Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?				X
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?				X

Regulatory Framework

Federal Endangered Species Act

The Federal Endangered Species Act (FESA) (16 U.S. Code [USC] Section 1531 et seq.; 50 Code of Federal Regulations [CFR] Parts 17 and 222) provides for conservation of species that are endangered or threatened throughout all or a substantial portion of their range, as well as protection of the habitats on which they depend. The U.S. Fish and Wildlife Service (USFWS) and the National Marine Fisheries Service share responsibility for implementing FESA. In general, USFWS manages terrestrial and freshwater species, whereas NMFS manages marine and anadromous species.

Section 9 of FESA and its implementing regulations prohibit the “take” of any species listed under FESA as endangered or threatened, unless otherwise authorized by federal regulations. FESA defines the term “take” to mean “harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct" (16 USC Section 1532). Section 7 of FESA (16 USC Section 1531 et seq.) outlines the procedures for federal interagency cooperation to conserve federally listed species and designated critical habitats. Section 10(a)(1)(B) of FESA provides a process by which nonfederal entities may obtain an incidental take permit from for otherwise lawful activities that incidentally may result in "take" of endangered or threatened species, subject to specific conditions. Although the Project would not result in take of federally endangered or threatened species, as part of Valley Water's co-permittee responsibilities under the Santa Clara Valley Habitat Plan (VHP), Valley Water is required to comply with all applicable VHP conditions and implement all applicable VHP Aquatic AMMs, even if the Project would not result in "take" of endangered or threatened species and incidental take coverage is not required.

Migratory Bird Treaty Act

The Migratory Bird Treaty Act (MBTA) (16 USC Sections 703–712; 50 CFR Subchapter B) makes it unlawful to pursue, hunt, take, capture, kill, or possess any migratory birds, or part, nests, or eggs of such migratory birds, that are listed in wildlife protection treaties between the U.S. and Canada, Mexico, Japan, and Russia. The MBTA applies to almost all avian species that are native to California. The MBTA prohibits the take of such species, including the removal of nests, eggs, and feathers. It requires that all federal agencies consult with USFWS on activities or proposed activities authorized, funded, or undertaken by that agency that may adversely affect migratory birds.

The Migratory Bird Treaty Reform Act amends the MBTA so that nonnative birds or birds that have been introduced by humans to the U.S. or its territories are excluded from protection under the MBTA.

Clean Water Act

Section 404 of the CWA regulates the discharge of dredged and fill materials into waters of the U.S., which include all navigable waters, their tributaries, and some isolated waters, as well as some wetlands adjacent to the aforementioned waters (33 CFR Section 328.3). Section 401 of the CWA requires an evaluation of water quality when a proposed activity requiring a permit under Section 404 of the CWA could result in a discharge to waters of the U.S. The Project does not involve the discharge of dredged and fill materials into waters of the U.S., thus, Sections 404 and 401 of the CWA do not apply.

California Fish and Game Code

The California Fish and Game Code (CFGC) includes various statutes that protect biological resources, including the California Native Plant Protection Act of 1977 (CNPPA) and the California Endangered Species Act (CESA) (CFGC Sections 2050–2098). The NPPA (CFGC Sections 1900-1913) authorizes the Fish and Game Commission to designate plants as endangered or rare and prohibits take of any such plants, except as authorized in limited circumstances. CESA prohibits state agencies from approving a project that would jeopardize the continued existence of a species listed under CESA as endangered or threatened. CFGC Section 2080 prohibits the take of any species that is state listed as endangered or threatened or designated as a candidate for such listing. California Department of Fish and Wildlife (CDFW) may issue an incidental take permit authorizing the take of listed and candidate species if that take is incidental to an otherwise lawful activity, subject to specified conditions. CFGC Sections 3503 and 3513 protect native and migratory birds, including their nests and eggs, from all forms of take. In addition, CFGC Sections 3511, 4700, 5050, and 5515 identify bird, fish, mammal, and amphibian species that are fully protected from all forms of take.

CDFW regulates activities that interfere with the natural flow of, or substantially alter, the channel, bed, or bank of a lake, river, or stream. CFGC Section 1602 requires that CDFW be notified of lake or streambed alteration activities. Since the Project would not include work in any channel, bed, or bank or any lake, river, or stream, CFGC Section 1602 does not apply.

Santa Clara Valley Habitat Plan

The Santa Clara Valley Habitat Plan (VHP) provides a framework for the protection and recovery of natural resources and threatened and endangered species in Santa Clara County, while streamlining the permitting process for planned development, infrastructure, and maintenance activities. The Santa Clara Valley Habitat Agency has overall responsibility for executing the requirements of the VHP, the permits, and the implementing agreement. As a co-permittee, Valley Water has committed to complying with applicable VHP conditions and implementing applicable VHP Aquatic AMMs when implementing covered Valley Water activities and projects in the VHP permit area.

The Project Site and Off-site Staging Area are in the VHP permit area. The Project is a VHP-covered activity and classified as “Urban Development” (VHP page 2-39), which is inclusive of all ground-disturbing activities within designated urban areas in the VHP permit area. This category of covered projects includes, but is not limited to, the construction, maintenance, and use of water delivery and storage facilities including treatment plants, pipelines, percolation ponds, and pump stations. As a VHP co-permittee, Valley Water must comply with applicable VHP conditions and implement the applicable VHP AMMs in **Table 5**.

Field-verified VHP land cover types at the Project Site and the Off-site Staging Area are Urban Suburban and Ornamental Woodland (**Figure 8**). The Project is not subject to any VHP species-specific wildlife or rare plant survey requirements. Because VPS is an existing facility and all improvements would occur within the fence line of the existing facility and concrete vault located in the adjacent existing maintenance road, VHP stream setback requirements do not apply.

As previously described in Section 2, Project Description, Valley Water would abide by the following VHP Conditions:

- Condition 1: Avoid Direct Impacts on Legally Protected Plant and Wildlife Species
- Condition 3: Maintain Hydrologic Conditions and Protect Water Quality

Condition 3 requires implementation of the VHP Aquatic AMMs to protect water quality and aquatic habitats. Applicable VHP Aquatic AMMs are presented in **Table 5**.

Town of Los Gatos Tree Protection Ordinance

The Town of Los Gatos Tree Protection Ordinance typically requires a tree removal permit in order to remove any tree designated as a Protected Tree. The ordinance also requires a pruning permit to prune more than 25% of a Protected Tree within a 3-year period, or to remove any branch or root greater than 4 inches in diameter of a *Large Protected Tree*. Trees removed during construction of the VPS Upgrade Project would require an arborist report and tree removal permit from the Town of Los Gatos unless the trees are smaller than 4 inches in diameter or the species are exempt from the ordinance. *Protected trees* include:

1. All trees which have a 4-inch or greater diameter on vacant or non-residential property.

2. All trees which have a 4-inch or greater diameter when removal relates to any development review.

3. Any tree that was required to be planted or retained by the terms and conditions of a development approval, building permit, tree removal permit or code enforcement action.

A *Large Protected Tree* is any tree with a diameter of 48 inches or more. In addition, all Oak, California Buckeye, and Pacific Madrone with a diameter of 24 inches or more are considered Large Protected Trees.

Tree removal and pruning permits are not required for removal or major pruning of any fruit or nut tree less than 18 inches in diameter, or any of the following trees that are less than 24 inches in diameter: Black Acacia (Acacia *melanoxylon*), Tulip Tree (Liriodendron *tulipifera*), Tree of Heaven (Ailanthus *altissima*), Blue Gum Eucalyptus (E. *globulus*), Red Gum Eucalyptus (E. *camaldulensis*), Palm (except Phoenix *canariensis*), and Privet (Ligustrum *lucidum).*

Although Valley Water is not subject to local tree protection ordinances, Valley Water would voluntarily comply with the Town of Los Gatos' Tree Protection Ordinance, including obtaining a tree removal permit before tree removal and complying with the permit conditions.[3]

Environmental Setting

Biological Site Assessments and Surveys

The biological resources impact analysis is based on the *Vasona Pump Station Upgrade Project Biological Resources Evaluation Report* (Vollmar Natural Lands Consulting, 2022) (**Appendix B**), which describes existing biological resources in the Biological Study Area. The Biological Study Area encompasses the VPS, the Off-site Staging Area, and approximately 1,250 feet of the Los Gatos Creek riparian corridor adjacent to, and extending downstream of, the VPS and Off-site Staging Area (**Figure 8**). The Project would not remove or disturb riparian vegetation and no work would occur on Los Gatos Creek. Rather, this section of Los Gatos Creek was included in the Biological Study Area to capture potential secondary impacts to downstream water quality and habitat. The report presents the results of a reconnaissance-level biological survey and review of the California Natural Diversity Database, California Natural Plant Society Inventory of Rare Plants, and the USFWS Information Planning and Consultation System (IPaC) list. The purpose was to determine whether any sensitive biological resources such as wetlands, streams, or habitats for special-status plants and wildlife species are in proximity to the Project, and to evaluate the potential for Project activities to result in significant biological impacts.

The impact assessment also incorporates the findings and recommendations of a daytime bat survey conducted in December 2022 (Watson, 2022) and a dusk emergence bat survey conducted during the bat maternity season in July 2024 (Watson, 2024) to determine if suitable bat roosting habitat is present and confirm there is no evidence of roosting bats at the at the Project Site and Off-site Staging Area.

[3] The municipal police power does not include the power to regulate entities operating under mandates set forth by state law, with the exception of local building or zoning regulations. See *Hall v. City of Taft* (1956) 47 Cal. 2d 177, 189; Gov't Code Section 53090 et seq. Courts have expressly applied this principal to water districts, which operate pursuant of the Water Code. See e.g., *Baldwin Park County Water Dist. v. Los Angeles County* (1962) 208 Cal.App.2d 87. Tree ordinances are generally not considered building or zoning ordinances. Even if removal of trees is regulated in a zoning ordinance, Section 53091(e) provides the exception that "zoning ordinances…shall not apply to the location or construction of facilities for the production, generation, storage, treatment, or transmission of water…." Since the proposed upgrades and improvements to the VPS would be used directly and immediately for the transmission of water, the Project would fall within the definition of this exception.

Sensitive Biological Resources Considered

Sensitive biological resources considered include:

- Species listed under the federal Endangered Species Act (threatened, endangered, candidates, and proposed)
- Birds protected by the Migratory Bird Treaty Act (MBTA) and Bald and Golden Eagle Protection Act;
- Species listed under the California Endangered Species Act (threatened, endangered, candidate)
- Species designated by the California Department of Fish and Wildlife (CDFW; Species of Special Concern [SSC], Fully Protected)
- Bats listed by the Western Bat Working Group (WBWG) as medium or high priority
- Plants with a California Rare Plant Ranking (CRPR) of 1A, 1B, 2A, 2B, 3, or 4
- Plant communities designated by CDFW or California Native Plant Society (CNPS) as global or state rank ("G" or "S") 1-3
- Trees protected by the Town of Los Gatos
- Potential state- and federally-regulated wetlands or waters

Existing Conditions in Biological Study Area

The Biological Study Area includes the Project Site (the area in which all facility improvements and upgrades would be installed and constructed and in which all construction-related ground disturbance would occur), Off-site Staging Area (previously-disturbed Valley Water-owned property on the west side of Los Gatos Creek that may be temporarily used during construction for staging equipment and stockpiling material), and a 1,250-foot reach of Los Gatos Creek (**Figure 8**). The Biological Study Area is surrounded by residential and commercial land uses, a heavily trafficked freeway system, recreational trails, and industrial groundwater recharge facilities. Los Gatos Creek flows southwest-to-northeast along the western boundary of the VPS and eastern boundary of the Off-site Staging Area. The topography in the area is highly altered, resulting in higher elevation, flat terraces largely separated from the restricted creek floodplain. The vegetation immediately surrounding the VPS developed footprint is landscaped. Native and naturalized trees intergrade along the margins of development and into the riparian area along the creek, which also features native and non-native vegetation in each of the vegetative strata. The area surrounding the Biological Study Area is planted or otherwise highly altered by the influence of development, imported soils, and engineered topography.

Botanical resources in the Biological Study Area include natural plant communities and ornamental plantings, and include riparian woodland, ornamental/naturalized woodland, and ruderal grassland. All plant communities are degraded by high levels of human impact and invasive species.

Vegetation Communities

Vasona Pump Station

Species within the northern fence line of the VPS are similar to those observed along the Los Gatos Creek riparian corridor. Tree species observed include native coast live oak and red willow, as well as non-native Peruvian pepper tree (*Schinus molle*), European olive (*Olea europaea*), acacias (*Acacia* sp.), and gum trees (*Eucalyptus* sp.) along the upper surrounding banks. The lower elevation area includes native coyote brush (*Baccharis pilularis*), as well as non-native fennel (*Foeniculum vulgare*), mustards (*Brassica* sp.), and French broom (*Genista monspessulana*).

The ornamental/naturalized woodlands include many of the species observed in other habitats, particularly coast live oak, but within an upland setting. The woodland located on the west side of the Biological Study Area includes coast live oak, Peruvian pepper tree, ornamental pine (*Pinus* sp.) and Deodar cedar (*Cedrus deodara*). The overstory of the landscaped area in the VPS include many native coast live oak trees, planted coast redwood (*Sequoia sempervirens*), and numerous ornamental trees, such as Callery pear (*Pyrus calleryana*), strawberry tree (*Arbutus unedo*), glossy privet (*Ligustrum lucidum*), European olive, and oleander (*Nerium oleander*). Understory species at the VPS include the planted native common rush (*Juncus patens*) as well as non-native ice plant (*Carpobrotus edulis*), lantana (*Lantana camara*), and ornamental rose. In areas where the managed landscaping transitions to natural areas, additional coast live oak, acacia, and gum trees are common.

Off-site Staging Area

Groundcover in the Off-site Staging Area is gravel interspersed with annual grasses. The ornamental woodland located in the Off-site Staging Area includes coast live oak, Peruvian pepper tree, ornamental pine (*Pinus* sp.) and Deodar cedar (*Cedrus deodara*).

Los Gatos Creek Corridor

Along the Los Gatos Creek corridor adjacent to and downstream of the VPS, the riparian woodland overstory consists of native tree species: red willow (*Salix laevigata*), California buckeye (*Aesculus californica*), Fremont cottonwood (*Populus fremontii*), valley oak, and coast live oak, as well as non-native species: silver wattle (*Acacia dealbata*), red gum (*Eucalyptus camaldulensis*), and plum (*Prunus sp.*). Some of the woody and vine strata in the riparian community include non-native Canary ivy (*Hedera canariensis*), ornamental rose (*Rosa sp.*), and cotoneaster (*Cotoneaster sp.*), as well as native narrow leaved willow (*Salix exigua*), poison oak (*Toxicodendron diversilobum*), mule fat (Baccharis salicifolia), and blue elderberry (*Sambucus nigra ssp. caerulea*). The creek channel supports narrow leaf cattail (*Typha angustifolia*), broadleaf cattail (*T. latifolia*), six petal water primrose (*Ludwigia hexapetala*), and knotweed (*Persicaria sp.*). The visible channel bottom consists of built-up organic material, silt, and gravel.

Special-Status Wildlife

Table 13 identifies special-status wildlife species with potential to occur in the Biological Study Area. In the absence of controls or avoidance and minimization measures, species that could potentially occur at the Project Site and Off-site Staging Area may be directly impacted by Project construction. Species with potential to occur along the Los Gatos Creek corridor could be subject to secondary impacts from construction-related noise, dust, and degradation of water quality.

Table 13: Special-Status Wildlife Species with Potential to Occur in Biological Study Area

Species	Protection Status Federal/State/Other	Description of Habitat Requirements	Potential to Occur in Biological Study Area
Amphibians			
California tiger salamander *Ambystoma californiense*	FT/ST/-	Grasslands and low foothills, with vernal pools for breeding.	**Absent.** Artificial ponds on-site are highly managed, and no suitable upland habitat exists.
Santa Cruz black salamander *Aneides niger*	-/SSC/-	Inhabits coastal grassland, open oak and conifer woodlands, redwood forest, mixed evergreen forest and along riparian corridors; adults found under rocks, talus, and damp woody debris.	**Absent.** Study area is outside of species' known range.
California giant salamander *Dicamptodon ensatus*	-/SSC/-	Adults rarely seen, but sometimes on surface in wet conditions, under rocks or woody debris, or in creeks; larvae found in cold, clear streams, often near headwaters. Mostly associated with dense scrub and forested areas including redwoods.	**Absent.** All nearby occurrences are further west and at higher elevations in the Santa Cruz Mountains.
Foothill yellow-legged frog *Rana boylii*	-/SE and SSC/-	Rocky, high gradient streams and rivers with rocky substrate and open, sunny banks; forests, chaparral, woodland.	**Absent.** All extant occurrences are located above reservoirs in upper watersheds, while study area is located in urbanized lowlands where species has essentially disappeared.
California red-legged frog *Rana draytonii*	FT/SSC/-	Marshes, stream pools, reservoirs, and ponds. Uses both riparian and upland habitats for foraging, shelter, cover, and non-dispersal movement.	**Absent.** High velocity, high-scour winter flows from the surrounding urban developments during CRLF breeding season eliminates the potential for CRLF to breed in this reach of Los Gatos Creek. The prevalence of predatory nonnative fish and bullfrogs in this disturbed reach of Los Gatos Creek further precludes the potential for CRLF to occur in the Biological Study Area. CRLF are known to occur upstream of the Biological Study Area, above Vasona Reservoir. There is no potential for CRLF to occur in the Biological Study Area under present conditions.

Species	Protection Status Federal/State/Other	Description of Habitat Requirements	Potential to Occur in Biological Study Area
Birds			
Tricolored Blackbird *Agelaius tricolor*	-/ST and SSC/-	Nest in large freshwater wetlands and marshes dominated by cattails, bulrushes and willows. Forages in open habitats such as pastures and lawns.	**Absent.** Although potentially suitable wetland habitats exist in the study area, the surrounding urban development lacks suitable for foraging habitat. Furthermore, species is not known to breed in riparian woodland in Santa Clara County nor where completely surrounded by urban areas (S. Lockwood, pers. comm. 2/24/2022).
Golden eagle *Aquila chrysaetos*	-/FP/-	Forages in open terrain such as grassland, desert, savannah, or young forests and shrub habitat. Constructs large nests on platforms of steep cliffs or in large trees in open areas.	**Absent as breeder.** Ruderal grasslands and open woodland areas may provide low quality foraging habitat. However, the highly developed surroundings render the immediate area unsuitable for nesting.
Burrowing Owl *Athene cunicularia*	-/SSC/-	Open, treeless areas with low, sparse vegetation in grasslands, deserts, pastures, agricultural fields, and more. Associated with mammal burrows, where they also nest.	**Absent.** The species has been actively monitored in the region by the HCP/NCCP and the study area is outside of modelled occupied nesting burrowing owl habitat. Although the ruderal grassland communities within the study area had ground squirrel burrows, these areas also support multiple mature trees that provide ample raptor perches. The suitable foraging area within the ruderal grasslands was also limited.
Swainson's Hawk *Buteo swainsoni*	-/ST/-	Breeds in stands with few trees in juniper-sage flats, riparian areas, and in oak savannah in the Central Valley. Forages in adjacent grasslands or suitable grain or alfalfa fields, or livestock pastures.	**Absent as breeder.** Recent observations indicate the species' range is expanding into Santa Clara County. However, habitats in the study area are highly urbanized and extensive foraging habitat is absent.
Yellow Rail *Coturnicops noveboracensis*	-/SSC/-	Densely vegetated coastal tidal marshes, seasonally flooded wetlands, and wet meadows.	**Absent.** Has been observed overwintering in Palo Alto Baylands. The artificial pond has degraded wetland habitat that is disconnected from suitable habitat found along the bay margin.

Species	Protection Status Federal/State/Other	Description of Habitat Requirements	Potential to Occur in Biological Study Area
White-tailed Kite *Elanus leucurus*	-/FP/-	Undisturbed open grasslands, meadows, farmlands, and emergent wetlands for foraging. Nests near top of dense oak, willow, or other tree stands.	**Not Expected.** Highly disturbed foraging habitat, lack of prey base, high levels of recreational use adjacent to potential breeding habitat and limited acreage of suitable foraging habitat in the immediate vicinity indicate it is unlikely the species would breed or forage within the site.
American Peregrine Falcon *Falco peregrinus anatum*	-/FP/-	Breeds mostly in woodland, forest, and coastal habitats near wetlands, lakes, rivers, or other water. Nests in a depression or ledge on high cliffs and human-made structures in open sites. Riparian areas and coastal and inland wetlands are important habitats yearlong, especially in nonbreeding seasons.	**Absent as breeder.** While species may forage within the study area, nesting habitat is not present within the study area.
Bald eagle *Haliaeetus leucocephalus*	-/SSC/-	Nest in forested areas adjacent to large bodies of water. Perch in tall, mature coniferous or deciduous trees.	**Absent as breeder.** Low quality foraging habitat present in wetland and riparian areas surrounded by urban developments. The species is known to nest adjacent to reservoirs in the region, including Anderson and Lexington Reservoirs (J. Abel per. Comm. 9/7/2022).
Yellow-breasted Chat *Icteria virens*	-/SSC/-	Frequents dense, brushy thickets and tangles near water, and thick understory in riparian woodland.	**Absent as breeder.** Study area lacks high quality dense understory which is used for nesting by the species. Species may forage within the study area as summer resident or itinerant migrant. All breeding known in Santa Clara County is in Diablo Range and southern part of the county (S. Lockwood, pers. comm. 2/24/2022).
Loggerhead Shrike *Lanius ludovicianus*	-/SSC/-	Common resident and winter visitor in lowlands and foothills of California. Prefers open habitats with scattered shrubs, trees,	**Not expected.** Open habitat of the study area is limited to degraded ruderal staging areas with scattered shrubs and trees.

Species	Protection Status Federal/State/Other	Description of Habitat Requirements	Potential to Occur in Biological Study Area
		posts, fences, utility lines, or other perches.	
California Ridgway's Rail (Clapper Rail) *Rallus obsoletus*	FE/SE and FP/-	Salt and brackish water marsh around San Francisco, Monterey, and Morro bays.	**Absent.** Study area is outside of species' known range.
California Least Tern *Sternula antillarum browni*	FE/SE and FP/-	Nests along the coast from San Francisco Bay south to northern Baja California. Colonial breeder on bare or sparsely vegetated, flat substrates: sand beaches, alkali flats, landfills, or paved areas.	**Absent.** Study area is outside of species' known range.
Fish			
Riffle sculpin *Cottus gulosus*	-/SSC/-	Live in permanent, cool, headwater streams where riffles and rocky substrates predominate.	**Potential to occur in Los Gatos Creek.** Species has been observed by Valley Water staff in Los Gatos Creek upstream of study area near Lexington Reservoir. The reach of Los Gatos Creek in the Biological Study Area has warmer temperatures than the preferred range of riffle sculpin. However, incidental individuals may occur in the study area due to stream connectivity. No in-stream work is planned and water quality AMMs would provide protection from indirect effects.
Pacific lamprey *Entosphenus tridentatus*	-/SSC/-	Utilizes both fresh water and marine habitats. Require cold, clear water for spawning. Found in the Sacramento-San Joaquin Delta and in rivers up to the first impassible dams. Migrating juveniles and returning adults pass through the entire San Francisco estuary.	**Absent.** Although the species may occur in Los Gatos Creek, the Camden Drop Structure downstream of the study area prevents upstream migration to portions of stream into the study area.
Southern coastal roach *Hesperoleucus venustus Subditus*	-/SSC/-	Small streams and intermittent watercourses. Dense populations are frequently observed in insolated pools. Abundant in mid-elevation streams in the Sierra Nevada	**Potential to occur in Los Gatos Creek.** Species is known in waterways within Santa Clara County and could occur outside of the Project Site and Off-site

Species	Protection Status Federal/State/Other	Description of Habitat Requirements	Potential to Occur in Biological Study Area
		foothills and in lower reaches of some San Francisco Bay streams.	Staging Area in Los Gatos Creek.
Delta smelt *Hypomesus transpacificus*	FT/SE/-	Endemic to streams, rivers, estuaries in the upper reaches of the San Francisco Bay and Sacramento-San Joaquin Delta Estuary. Restricted to the tidal portions of the Sacramento-San Joaquin Delta. May occur in Suisun Bay, Carquinez Strait and San Pablo Bay during wet years with high Delta outflow.	**Absent.** Study area is outside of species' known range.
Steelhead—Central California Coast DPS *Oncorhynchus mykiss irideus pop. 8*	FT/-/-	Streams, rivers, lakes, estuaries, ocean from Russian River south to Soquel Creek and to, but not including, the Pajaro River. Also includes San Francisco and San Pablo Bay Basins.	**Absent.** Although the species may occur in Los Gatos Creek, the Camden Drop Structure downstream of the study area prevents upstream migration to portions of stream into the study area.
Chinook salmon—Central Valley Fall/Late Fall-Run ESU *Oncorhynchus tshawytscha pop. 13*	-/SSC/-	Streams, rivers, estuaries, ocean. Spawn in coarse material that allows sufficient water flow, in the Sacramento and San Joaquin River watersheds as far as the first impassible dams, typically up to 1,000 feet above sea level.	**Absent.** Although the species may occur in Los Gatos Creek, the Camden Drop Structure downstream of the study area prevents upstream migration to portions of stream into the study area.
Insects			
Monarch butterfly *Danaus plexippus*	FC/-/-	Roosts in wind-protected tree groves with nectar and water nearby. Overwinters in tall trees in large groups during migration. Forages on showy nectar source flowers. Breeds on milkweed (*Asclepias* sp.) vegetation. This species is not listed, but the IUCN recognizes the monarch migration as an endangered phenomenon.	**Potential.** Species is unlikely to be found breeding in the Biological Study Area due to the lack of milkweed, a perennial plant that is necessary for larval feeding. No milkweed was observed during the fall survey. However, there is potential for adults to forage in the study area. Nectar-producing flowering plants are common in the developed landscaping at the VPS and at residences in the neighborhood. Overwintering roosting is not expected within the study area.

Species	Protection Status Federal/State/Other	Description of Habitat Requirements	Potential to Occur in Biological Study Area
Bats			
Pallid bat *Antrozous pallidus*	-/SSC/WBWG: H	Mountainous areas, intermontane basins, and lowland desert scrub; arid deserts and grasslands, often near rocky outcrops and water; in some areas, this species also inhabits open coniferous forest and woodland. Species is sensitive to disturbance to roosting sites .	**Not expected.** The study area is subject to high levels of human activity. Potential trees roosts in the riparian or other woodland habitat in the study area are close to Valley Water operations, a public multi-use trail and suburban/office developments. One tree cavity was observed along Los Gatos Creek across from the VPS. No guano or urine staining was observed. As a social species, roosting locations may support 20 or more individuals.
Townsend's big-eared bat *Corynorhinus townsendii*	-/SSC/WBWG: H	Pine forest or desert scrub near caves or other rock formations with cavernous features. Less common roosting habitat includes buildings, bridges, and hollow trees. Foraging habitat typically include edge habitat (wooded habitat) along streams. Species is extremely sensitive to disturbance of roosting sites.	**Potential.** No cavernous features representative of those typically used by this species were observed. However, species could potentially roost in buildings, overpasses, or hollow trees in the riparian or other woodland habitat within the study area. However, potential is relatively low as the study area is subject to high levels of human activity, including Valley Water operations, a public multi-use trail and suburban/ office developments. One tree cavity, lacking guano and urine staining, was observed along Los Gatos Creek across from the VPS. The reconnaissance survey did not cover all buildings and underpass cervices. Solitary individuals, family groups and nursery roosts are known for this species.
Western red bat *Lasiurus blossevillii*	-/SSC/WBWG: H	Strongly associated with riparian habitats, particularly mature stands of cottonwood/sycamore in the Central Valley and lower reaches of the large rivers that drain the Sierra Nevada. Day roosts are located commonly in edge habitats adjacent to	**Potential.** Riparian and naturalized/ornamental woodland in the study area may provide foraging habitat. Although the species is not known to breed in Santa Clara County, it could utilize the study area during seasonally. As a solitary

Species	Protection Status Federal/State/Other	Description of Habitat Requirements	Potential to Occur in Biological Study Area
		streams or open fields, in orchards, and sometimes in urban areas. Forage in and among vegetation, including oak woodlands and riparian corridors.	species, it is unlikely to be present in large numbers.
Hoary bat *Lasiurus cinereus*	-/-/WBWG: M	Roosts at edge of clearings for coniferous and deciduous woodland/forests. Less likely roosting habitat includes caves, rock ledges, and buildings	**Potential.** Species could potentially roost in the riparian or other woodland habitat within the Biological Study Area. As a solitary species, it is unlikely to be present in large numbers.
Mammals			
San Francisco dusky-footed woodrat *Neotoma fuscipes annectens*	-/SSC/-	Builds stick homes on ground or within trees in shaded and cool areas, typically within coast live oak and willow forests with thick underbrush.	**Observed**. Multiple nests were observed in the Project Site and at the Off-site Staging Area.
Reptiles			
Southwestern pond turtle *Actinemys pallida*	-/SSC/-	Permanent and intermittent waters of rivers, creeks, small lakes and ponds, marshes, unlined irrigation canals, and reservoirs.	**Potential to occur in Los Gatos Creek.** Species could potentially occur within Los Gatos Creek. Upland habitat is fragmented, highly developed and impacted by high levels of recreational and operational use. Species is known from Vasona Reservoir upstream of the Biological Study Area.
Northern California legless lizard *Anniella pulchra*	-/SSC/-	Moist, warm, loose soil in sparsely vegetated areas. Coastal dune, valley-foothill, chaparral, and coastal scrub habitats.	**Absent.** Although the sandy loam soil type in the study area may be suitable, it characterizes the riparian and naturalized/ornamental woodland areas. The proposed Project's footprint, vehicular access, materials storage, parking, and staging areas are all actively used for staging and occur on upland compacted fill, or graded, rolled, and maintained gravel. Historic occurrence in vicinity is likely extirpated as the observation was made in 1949 in an agricultural field now presumably developed.
Coast horned lizard	-/SSC/-	Valley-foothill hardwood, conifer, riparian, and annual grassland habitats	**Absent.** Known from southeast of the study area in intact habitat. Fragmented

Species	Protection Status Federal/State/Other	Description of Habitat Requirements	Potential to Occur in Biological Study Area
Phrynosoma blainvillii		in the Sierra Nevada foothills throughout the central and southern California coast. Forage in open areas, usually between shrubs and often near ant nests.	habitat within the study area is highly impacted by development. Furthermore, the highly invasive Argentine ant (*Linepithema humile*) is found throughout this urbanized area, which severely limits the food base for this specialized lizard.

SOURCE: Vollmar Natural Lands Consulting, 2022.
PROTECTION STATUS:

Federal
FT = Federal Threatened
FE = Federal Endangered
FC = Federal Candidate

State
ST = State Threatened
SE = State Endangered
SSC = CDFW Species of Special Concern
FP = CDFW Fully Protected

Other
WBWG: H = Western Bat Working Group High Priority
WBWG M = Western Bat Working Group Medium Priority

Special-Status Plants

Table 14 presents the occurrence potential for special-status plants. As indicated by the table, there are no special-status plant species that have potential to occur in the Biological Study Area.

Table 14: Special-Status Plant Species with Potential to Occur in the Biological Study Area

Species	Protection Status Federal/State/CNPS	Preferred Habitat; Elevation Range; Bloom Period	Potential to Occur in the Biological Study Area
Amsinckia lunaris bent-flowered fiddleneck (Boraginaceae)	-/-/1B.2	Cismontane woodland, Coastal bluff scrub, Valley and foothill grassland; 10 to 1,640 feet above sea level; March-June	**Absent.** No suitable habitat present. Preferred vegetation communities are not present in study area.
Arabis blepharophylla coast rockcress (Brassicaceae)	-/-/4.3	Broad-leafed upland forest, Coastal bluff scrub, Coastal prairie, Coastal scrub, Rocky; 10 to 3,610 feet above sea level; February-May	**Absent.** No suitable substrate present. Study area is inland from the coast. Forest habitat is riparian and impacted by surrounding development.
Arctostaphylos silvicola Bonny Doon manzanita (Ericaceae)	-/-/1B.2	Chaparral, Closed-cone coniferous forest, Lower montane coniferous forest;	**Absent.** No suitable habitat present. Preferred elevation

Species	Protection Status Federal/State/CNPS	Preferred Habitat; Elevation Range; Bloom Period	Potential to Occur in the Biological Study Area
		395 to 1,970 feet above sea level; January-March	range is above study area.
Calandrinia breweri Brewer's calandrinia (Montiaceae)	-/-/4.2	Chaparral, Coastal scrub, burned areas, Disturbed areas, Loam (sometimes), Sandy (sometimes); 35 to 4,005 feet above sea level; (January) March-June	**Absent.** No suitable habitat present. Disturbance from development not from natural processes.
Centromadia parryi ssp. *Congdonii* Congdon's tarplant (Asteraceae)	-/-/1B.1	Valley and foothill grassland; 0 to 755 feet above sea level; May-October (November)	**Absent.** No suitable habitat present. Grassland habitat is ruderal and disturbed by development and ongoing use.
Chorizanthe pungens var. *hartwegiana* Ben Lomond spineflower (Polygonaceae)	FE/-/1B.1	Lower montane coniferous forest; 295 to 2,000 feet above sea level; April-July	**Absent.** No suitable habitat present. Preferred elevation range is above study area.
Chorizanthe robusta var. *robusta* robust spineflower (Polygonaceae)	FE/-/1B.1	Chaparral, Cismontane woodland, Coastal dunes, Coastal scrub; 10 to 985 feet above sea level; April-September	**Absent.** No suitable habitat present. Forest habitat is riparian and impacted by surrounding development.
Cirsium fontinales var. *campylonvalv* Mt. Hamilton thistle (Asteraceae)	-/-/1B.2	Chaparral, Cismontane woodland, Valley and foothill grassland; 330 to 2,920 feet above sea level; (February) April-October	**Absent.** No suitable habitat present. Preferred elevation range is above study area.
Clarkia breweri Brewer's clarkia (Onagraceae)	-/-/4.2	Chaparral, Cismontane woodland, Coastal scrub; 705 to 3,660 feet above sea level; April-June	**Absent.** No suitable habitat present. Preferred elevation range is above study area.
Clarkia concinna ssp. *Automixa* Santa Clara red ribbons (Onagraceae) *Collinsia multicolor*	-/-/4.3	Chaparral, Cismontane woodland; 295 to 4,920 feet above sea level; (April) May-June (July)	**Absent.** No suitable habitat present. Preferred elevation range is above study area.
Clarkia lewisii Lewis' clarkia (Onagraceae)	-/-/4.3	Broadleafed upland forest, Chaparral, Cismontane woodland, Closed-cone coniferous forest, Coastal scrub; 100 to 3,920 feet above sea level; May-July	**Absent.** No suitable habitat present. Woodland habitat is riparian and impacted by surrounding development.

Species	Protection Status Federal/State/CNPS	Preferred Habitat; Elevation Range; Bloom Period	Potential to Occur in the Biological Study Area
San Francisco collinsia (Plantaginaceae)	-/-/1B.2	Closed-cone coniferous forest, Coastal scrub; 100 to 900 feet; (February) March-May	**Absent.** No suitable vegetation communities present.
Cypripedium fasciculatum clustered lady's-slipper (Orchidaceae)	-/-/4.2	Lower montane coniferous forest, North Coast coniferous forest; 330 to 7,990 feet above sea level; March-August	**Absent.** No suitable habitat present. Preferred elevation range is above study area.
Dirca occidentalis western leatherwood (Thymelaeaceae)	-/-/1B.2	Broadleafed upland forest, Chaparral, Cismontane woodland, Closed-cone coniferous forest, North Coast coniferous forest, Riparian forest, Riparian woodland; 80 to 1,395 feet above sea level; January-March (April)	**Absent.** Not observed during reconnaissance survey. Riparian habitat is highly altered and impacted by surrounding development.
Dudleya abramsii ssp. *Setchellii* Santa Clara Valley dudleya (Crassulaceae)	FE/-/1B.1	Cismontane woodland, Valley and foothill grassland, Rocky, Serpentinite; 195 to 1,755 feet above sea level; April-October	**Absent.** No suitable substrates present.
Fritillaria liliacea fragrant fritillary (Liliaceae)	-/-/1B.2	Cismontane woodland, Coastal prairie, Coastal scrub, Valley and foothill grassland; 10 to 1,345 feet above sea level; February-April	**Not expected.** Woodland and grassland habitat is ruderal. All habitats are highly altered and impacted by surrounding development.
Galium andrewsii ssp. *Gatense* phlox-leaf serpentine bedstraw (Rubiaceae)	-/-/4.2	Chaparral, Cismontane woodland, Lower montane coniferous forest; 490 to 4,755 feet above sea level; April-July	**Absent.** No suitable habitat present. Preferred elevation range is above study area.
Hoita strobilina Loma Prieta hoita (Fabaceae)	-/-/1B.1	Chaparral, Cismontane woodland, Riparian woodland; ultramafic;100 to 2,820 feet above sea level; May- July (August-October)	**Absent.** No suitable ultramafic or serpentine substrates in the study area.
Iris longipetala coast iris (Iridaceae)	-/-/4.2	Coastal prairie, Lower montane coniferous forest, Meadows and seeps; 0 to 1,970 feet	**Absent.** No suitable vegetation communities within the study area.

Species	Protection Status Federal/State/CNPS	Preferred Habitat; Elevation Range; Bloom Period	Potential to Occur in the Biological Study Area
		above sea level; March-May (June)	
Leptosiphon acicularis bristly leptosiphon (Polemoniaceae)	-/-/4.2	Chaparral, Cismontane woodland, Coastal prairie, Valley and foothill grassland; 180 to 4,920 feet above sea level; April-July	**Not expected.** Woodland and grassland habitat is ruderal. All habitats are highly altered and impacted by surrounding development.
Leptosiphon ambiguous serpentine leptosiphon (Polemoniaceae)	-/-/4.2	Cismontane woodland, Coastal scrub, Valley, and foothill grassland; 395 to 3,710 feet above sea level; March- June	**Absent.** No suitable habitat present. Preferred elevation range is above study area.
Leptosiphon grandifloras large-flowered leptosiphon (Polemoniaceae)	-/-/4.2	Cismontane woodland, Closed-cone coniferous forest, Coastal bluff scrub, Coastal dunes, Coastal prairie, Coastal scrub, Valley and foothill grassland; 15 to 4,005 feet above sea level; April-August	**Not expected.** Woodland and grassland habitat is ruderal. All habitats are highly altered and impacted by surrounding development.
Lessingia hololeuca woolly-headed lessingia (Asteraceae)	-/-/3	Broadleafed upland forest, Coastal scrub, Lower montane coniferous forest, Valley and foothill grassland; 50 to 1,000 feet above sea level; June-October	**Not expected.** Woodland and grassland habitat is ruderal. All habitats are highly altered and impacted by surrounding development.
Lessingia micradenia var. *glabrata* smooth lessingia (Asteraceae)	-/-/1B.2	Chaparral, Cismontane woodland, Valley and foothill grassland; 395 to 1,380 feet above sea level; (April-June) July-November	**Absent.** No suitable habitat present. Preferred elevation range is above study area.
Lessingia tenuis spring lessingia (Asteraceae)	-/-/4.3	Chaparral, Cismontane woodland, Lower montane coniferous forest; 985 to 7,055 feet above sea level; May-July	**Absent.** No suitable habitat present. Preferred elevation range is above study area.
Malacothamnus arcuatus arcuate bush-mallow (Malvaceae)	-/-/1B.2	Chaparral, Cismontane woodland; 50 to 1,165 feet above sea level; April-September	**Not expected.** Woodland is highly altered and impacted by surrounding development.

Species	Protection Status Federal/State/CNPS	Preferred Habitat; Elevation Range; Bloom Period	Potential to Occur in the Biological Study Area
Malacothamnus hallii Hall's bush-mallow (Malvaceae)	-/-/1B.2	Chaparral, Coastal scrub; 35 to 2,495 feet above sea level; (April) May-September (October)	**Absent.** No suitable vegetation communities within the study area.
Monolopia gracilens woodland woollythreads (Asteraceae)	-/-/1B.2	Broadleafed upland forest, Chaparral, Cismontane woodland, North Coast coniferous forest, Valley and foothill grassland; 330 to 3,935 feet above sea level; (February) March-July	**Absent.** No suitable habitat present. Preferred elevation range is above study area.
Pedicularis dudleyi Dudley's lousewort (Orobanchaceae)	-/CR/1B.2	Chaparral, Cismontane woodland, North Coast coniferous forest, Valley and foothill grassland; 195 to 2,955 feet above sea level; April-June	**Not expected.** Woodland and grassland habitat is ruderal. All habitats are highly altered and impacted by surrounding development.
Pentachaeta bellidiflora white-rayed pentachaeta (Asteraceae)	FE/CE/1B.1	Cismontane woodland, Valley and foothill grassland; 115-2,035 feet above sea level; March-May	**Not expected.** Woodland and grassland habitat is ruderal. All habitats are highly altered and impacted by surrounding development.
Piperia candida white-flowered rein orchid (Orchidaceae)	-/-/1B.2	Broadleafed upland forest, Lower montane coniferous forest, North Coast coniferous forest; 100 to 4,300 feet above sea level; (March) May-September	**Not expected.** Woodland is highly altered and impacted by surrounding development.
Plagiobothrys chorisianus var. *hickmanii* Hickman's popcornflower (Boraginaceae)	-/-/4.2	Chaparral, Closed-cone coniferous forest, Coastal scrub, Marshes and swamps, Vernal pools; 50 to 1,280 feet above sea level; April-June	**Absent.** No suitable vegetation communities within the study area.
Plagiobothrys glaber hairless popcornflower (Boraginaceae)	-/-/1A	Marshes and swamps, Meadows and seeps; 50 to 590 feet above sea level; March-May	**Absent.** No suitable vegetation communities within the study area.
Sanicula saxatilis rock sanicle (Apiaceae)	-/CR/1B.2	Broad-leafed upland forest, Chaparral, Valley, and foothill grassland; 2,035 to	**Absent.** No suitable habitat present. Preferred elevation range is above study area.

Species	Protection Status Federal/State/CNPS	Preferred Habitat; Elevation Range; Bloom Period	Potential to Occur in the Biological Study Area
		3,855 feet above sea level; April-May	
Streptanthus albidus ssp. *peramoenus* most beautiful jewelflower (Brassicaceae)	-/-/1B.2	Chaparral, Cismontane woodland, Valley and foothill grassland; 310 to 3,280 feet above sea level; (March) April-September (October)	**Absent.** No suitable habitat present. Preferred elevation range is above study area.
Trifolium buckwestiorum Santa Cruz clover (Fabaceae)	-/-/1B.1	Broad-leafed upland forest, Cismontane woodland, Coastal prairie; 345 to 2,000 feet above sea level; April-October	**Absent.** No suitable habitat present. Preferred elevation range is above study area.
Trifolium hydrophilum saline clover (Fabaceae)	-/-/1B.2	Marshes and swamps, Valley and foothill grassland, Vernal pools; 0 to 985 feet above sea level; April-June	**Not expected.** Grassland is ruderal and impacted by surrounding development.

SOURCE: Vollmar Natural Lands Consulting, 2022.

NOTES: Compiled from a CNPS 4-Quad search of the Cupertino, San Jose West, Castle Rock Ridge, and Los Gatos quadrangles. Bloom Periods in Parentheses indicate that the species *occasionally* blooms during that period.

Rarity Status Codes:

FE = Federally listed as Endangered
CE = State listed as Endangered
CR = State listed as Rare

CNPS California Rare Plant Ranks:

CRPR List 1A: Plants presumed extirpated in California and either rare or extinct elsewhere.
CRPR List 1B = Plants rare, threatened or endangered in CA and elsewhere.
CRPR 2B = Plants rare, threatened or endangered in California but more common elsewhere.
CRPR 3 = More information is needed about plant.
CRPR 4 = Plants of limited distribution, a watch list.
CRPR Code Extensions:

- 0.1 = Seriously threatened in CA
- 0.2 = Fairly threatened in CA
- 0.3 = Not very threatened in CA

Figure 8: VHP Land Cover Types

Discussion

(a) Less than Significant with Mitigation Incorporated. The Project Site and Off-site Staging Area are not designated critical habitat for endangered or threatened species. All Project-related ground disturbance would occur in areas that have been previously disturbed and developed.

Candidate, sensitive, and special-status wildlife species could be adversely affected by tree and vegetation removal, earthwork, construction noise, increased activity levels from construction, and direct mortality. Migratory birds and nests and eggs of migratory birds are protected under the Migratory Bird Treaty Act (MBTA). The removal of up to three 4-inch diameter ornamental trees would be subject to the Town of Los Gatos Tree Ordinance. Vegetation at the Project Site has been degraded by high levels of human impact and invasive species. Although none of the plant communities at the Project Site are considered sensitive, the adjacent Los Gatos Creek riparian corridor could be adversely affected by construction-related increases in soil erosion and sedimentation of downstream waters. Valley Water standard BMPs and VHP Aquatic AMMs would avoid, minimize, and prevent many, but not all, impacts to sensitive biological resources. Where significant impacts to sensitive biological resources could occur even with implementation of the BMPs and Aquatic AMMs, mitigation measures are prescribed to reduce the impacts to a less-than-significant level, as further explained below.

Candidate, sensitive, and special-status wildlife species with potential to occur in the Biological Study Area, and sensitive habitats that were observed in the Biological Study Area, include:

- Los Gatos Creek riparian corridor
- Potentially jurisdictional waters and wetlands at creek discharge dissipation structure
- Mature trees, including coast live oaks and valley oaks (*Quercus lobat*a);
- White-tailed kite (*Elanus leucurus*; CDFW Fully Protected);
- Riffle sculpin (*Cottus gulosus*; CDFW SSC);
- Southern coastal roach (*Hesperoleucus venustus subditus*; CDFW SSC);
- Monarch butterfly (*Danaus plexippus*; Federal Candidate);
- Townsend’s big-eared bat (*Corynorhinus townsendii;* CDFW SSC and WBWG high priority);
- Western red bat (*Lasiurus blossevillii*; CDFW SSC and WBWG high priority);
- Hoary bat (*Lasiurus cinereus*; WBWG medium priority);
- San Francisco dusky-footed woodrat (*Neotoma fuscipes annectens*; CDFW SSC);
- Southwestern pond turtle (*Actinemys pallida*; CDFW SSC); and
- Active nests of bird species protected by the MBTA and California Fish and Game Code (CFGC).

<u>Impacts to Birds</u>

As shown in **Table 13**, above, special-status bird species, migratory birds, and raptors have the potential to forage in the Biological Study Area and be adversely affected by the Project. The following Valley Water standard BMPs would be implemented to prevent significant impacts on birds and minimize disruption of nests: **BMP BI-5 (Avoid Impacts to Nesting Migratory Birds)** and **BMP BI-6 (Avoid Impacts to Nesting Migratory Birds from Pending Construction)**. These require pre-work nesting bird surveys and avoidance and minimization measures such as establishing no-work buffers and installing nesting exclusion devices. Additionally, Valley Water’s construction contractor would implement **Aquatic AMMs 29, 30, 31, 40, and 49**, which would limit vegetation removal to the minimal amount needed to construct the Project, would minimize the potential disturbance to nesting and foraging birds. Implementation of these Valley Water standard BMPs and VHP Aquatic AMMs would minimize the potential for significant bird impacts to occur but the impact would remain significant. However, implementation of **Mitigation Measures MM BIO-01 (Environmental Awareness Training)** and **MM BIO-05**

(Biological Surveys after Lapse in Construction Activity), which would require that all construction personnel receive environmental awareness training and that pre-construction surveys be repeated if there is a two week or longer lapse in construction activities, potential impacts to nesting and foraging birds during construction would be reduced to a less-than-significant level.

Impacts to Fish

Riffle Sculpin and Southern Coastal Roach are found in waterways of Santa Clara County and upper reaches of Los Gatos Creek. Riffle Sculpin have been observed by Valley Water staff in Los Gatos Creek upstream of study area near Lexington Reservoir. Although the reach of Los Gatos Creek in the Biological Study Area has warmer water temperatures than preferred by riffle sculpin, this species could potentially occur in the study area due to stream connectivity. No in-stream work within Los Gatos Creek is planned that could directly impact aquatic species. However, the potential for increased soil erosion during Project construction could result in sedimentation of receiving waterbodies and indirect impacts to water quality and aquatic species. Implementation of the following Valley Water standard BMPs: **BMP WQ-9 (Use Seeding for Erosion Control, Weed Suppression, and Site Improvement), BMP WQ-11 (Maintain Clean Conditions at Work Sites),** and **BMP WQ-16 (Prevent Stormwater Pollution),** and implementation of the following **Aquatic AMMs: 1, 2, 3, 4, 5, 7, 8, 11, 12, 30, 31, 49, 58, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 74, 75, 76, 83, 84, 87, 88, 96, 97, 100, 101, 102, 103, and 104** would protect water quality in Los Gatos Creek during construction and ensure indirect impacts to aquatic species are less than significant. Impacts to fish would be less than significant. No mitigation is required.

Impacts to Monarch Butterfly

Monarch butterflies are unlikely to breed in the Biological Study Area due to the lack of milkweed, a perennial plant that is necessary for larval feeding. Milkweed was not observed in the Biological Study Area during the 2022 fall survey conducted for the Project. However, there is potential for adult Monarchs to forage in the area. Nectar-producing flowering plants are common in the ornamental landscaping at the VPS and at residences in the neighborhood. Overwintering Monarchs in the Biological Study Area are not expected. Due to the lack of milkweed in the Biological Study Area, impacts to Monarchs from Project construction activities, including earthwork and vegetation removal, would be less than significant. Due to the limited area of disturbance at the Project Site and presence of other foraging habitat nearby that would remain undisturbed during Project construction, the temporary removal of perimeter landscaping at the VPS for construction access would not significantly impact Monarchs. Upon completion of construction, the Project Site would be returned to pre-existing conditions. Thus, impacts to Monarch butterflies would be less than significant. No mitigation is required.

Impacts to Bats

No habitat features suitable to support a large bat maternity or overwintering colony were observed and no bats were detected visually or acoustically at the Project Site or Off-site Staging Area during the winter December 2022 bat survey or the summer July 2024 bat surveys conducted during the bat maternity season for the Project. Hoary bat (*Lasiurus cinereus*) and state species of special concern western red bat *(Lasiurus blossevillii*) are both solitary roosters that typically roost in dense clusters of foliage and tend to have low roost site fidelity. If they were to occur in the Project vicinity, they would be most likely to day roost in dense clusters of foliage on mature eucalyptus or pepper trees. They are not known to breed in Santa Clara County and would only be expected to occur in the winter or while passing through during migration. Therefore, they would not be expected to occur regularly or in large numbers. No evidence of either of these species was observed during the December 2022 and July 2024 bat surveys. It is possible that a number of bat species could pass through the biological study area between foraging and roost sites beginning around sunset when weather conditions are suitable; however, they would most likely be moving through the riparian corridor outside of the Project area at night. No overwintering bats of any species or evidence of use of any potential roost features by bats have been detected visually or acoustically at the Project Site or Off-site Staging Area. Thus, it is unlikely that the Project would affect bat maternity sites or overwintering colony roosts. However, impacts could occur to foliage-roosting individuals during vegetation removal and pruning, either directly by injury from equipment or indirectly by causing an individual to abandon a roost during the day, exposing it to increased predation risk or the elements (Watson, 2022 and Watson, 2024). This would be considered a potentially significant impact. If foliage-roosting bats are found during the pre-construction biological surveys, implementation of **Mitigation Measure MM BIO-02 (Roosting Bats)** would ensure that proper measures are taken to avoid or reduce potential impacts to roosting individuals to a less-than-significant level.

Nighttime lighting is a threat to bat roosting or foraging. Most bat species avoid anthropogenic lighting. Although construction would be limited to daytime hours, a temporary increase in nighttime lighting for increased security during Project construction could cause certain species to avoid the area. However, the area surrounding the Project Site and Off-site Staging Area is developed, and the Project Site and Off-site Staging Area do not offer high quality roosting or foraging habitat for bats. The Project Site and Off-site Staging Area are bordered by single-family and multi-family residential housing, Los Gatos Creek, and SR 85 and SR 17. If individuals were using Los Gatos Creek as a pathway for movement, the riparian corridor would provide a visual and acoustic buffer from Project-related construction activities, and individuals would be free to move through the area of their own volition. Western red bat could potentially be attracted to nighttime lighting for foraging opportunities; however, if they were to occur in the work area it would be in low numbers and when the Project Site is inactive.

Noise or vibration associated with Project construction could cause bats to avoid the area or disturb roosting bats. Effects of vibration on bats have not been well studied, but there are few data suggesting that substrate vibrations affect bats. Effects of noise on bats are influenced by the frequency of sound, and whether it is in a range to which a given species is sensitive. For example, western red bat has a characteristic frequency range of approximately 40 kHz. While noise and vibration associated with truck deliveries of materials, heavy equipment, small vehicles, or ground disturbance could disturb roosting bats, evidence suggests that bats tolerate relatively high levels of low frequency noises typically associated with construction equipment (H.T. Harvey, 2021).

Impacts to individual foliage-roosting bats during Project construction would be potentially significant but would be reduced to a less-than-significant level with implementation of **Mitigation Measure MM BIO-02 (Roosting Bats)**.

Impacts to San Francisco Dusky-Footed Woodrat

The San Francisco dusky-footed woodrat is a state species of special concern. Woodrat nests were observed at the Project Site at the Valve Yard and along the perimeter fencing that borders the Valley Water access road on the east side of Los Gatos Creek, and at the Off-site Staging Area under a small grove of Oak trees. Due to their known presence and (at the VPS) proximity to the construction work area, woodrats could be significantly impacted during Project construction.

Valley Water's construction contractor would implement **BMP BI-10 (Avoid Animal Entry and Entrapment)** and **Aquatic AMMs 95 and 115,** which require measures to prevent animal entry and entrapment in pipes, hoses, and excavations at the Project Site and Off-site Staging Area, would reduce adverse effects on San Francisco dusky-footed woodrat. However, if the woodrat nests are active, a significant impact could result. Implementation of **Mitigation Measures MM BIO-01 (Environmental Awareness Training), MM BIO-03 (Dusky-Footed Woodrat)**, and **MM BIO-05 (Biological Surveys after Lapse in Construction Activity)** which require that all construction personnel receive environmental awareness training, pre-construction surveys of the Project Site and Off-site Staging Area within 14 days prior to the start of construction, determining if nests are active, the establishment of no-work buffers around active nests, coordination with CDFW and relocation of any nests that cannot be avoided, and additional surveys anytime there is a two week or longer lapse in construction, the potential impact to woodrats would be reduced to a less-than-significant level.

Impacts to Southwestern Pond Turtle

Southwestern pond turtle could be present in Los Gatos Creek during Project construction. Significant impacts to turtles could occur if Project construction increased soil erosion and sedimentation and degraded water quality in Los Gatos Creek, or if individual turtles were to enter active work areas and be crushed by heavy equipment (direct mortality). Valley Water's construction contractor would implement **BMP BI-10 (Avoid Entry and Entrapment**) and **BMP BI-11** (**Minimize Predator-Attraction**), which include measures to prevent animals from entering pipes, hoses, and excavations, would prevent entrapment impacts. Valley Water's construction contractor would also implement the following BMPs to protect water quality: **BMP WQ 4 (Limit Impacts from Staging and Stockpiling Materials), BMP WQ-9 (Use Seeding for Erosion Control, Weed Suppression, and Site Improvement), BMP WQ-11 (Maintain Clean Conditions at Work Sites), BMP WQ-16 (Prevent Stormwater Pollution), BMP HM-7 (Restrict Vehicle and Equipment Cleaning to Appropriate Locations), BMP HM-8 (Ensure Proper Vehicle and Equipment Fueling and Maintenance), BMP HM-9 (Ensure Proper Hazardous Materials Management), and BMP HM-10 (Utilize Spill Prevention Measures).** In addition, the construction contractor would implement the following VHP Aquatic AMMs during construction to protect water quality: **Aquatic AMMs: 1, 2, 3, 4, 5, 7, 8, 11, 12, 30, 31, 49, 58, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 74, 75, 76, 83, 84, 87, 88, 96, 97, 100, 101, 102, 103, and 104.** Implementation of these BMPs and Aquatic AMMs would prevent accidental entrapment and increased predation, as well as secondary or indirect impacts to turtles from construction-related impacts on water quality. However, the potential for direct mortality if individuals enter active work areas is considered a significant impact. Implementation of **Mitigation Measures MM BIO-01 (Environmental Awareness Training)** and **MM BIO-04 (Southwestern Pond Turtle**), which require construction worker receive training about sensitive biological resources that could be encountered during construction, installation of silt fencing around active work areas that would also act as exclusion fencing for turtles, biological monitoring, and coordination with CDFW on relocation of any individual Southwestern pond turtles found at the Project Site during construction, would reduce the impact of direct mortality to a less-than-significant level.

(b-c) Less Than Significant Impact. All Project-related disturbance would occur in previously disturbed and developed areas. The Project does not involve any work or direct disturbance in the Los Gatos Creek channel or associated riparian vegetation. The Project Site was significantly disturbed and mechanically altered during construction of the VPS in 1975 and is underlain by 7 feet of engineered fill. There are no state or federally protected waters or wetlands at the Project Site or Off-site Staging Area. No work would occur at the creek discharge dissipation structure, in Los Gatos Creek, or next to any other state or federally jurisdictional wetland or water. Thus, the Project would not result in a substantial adverse effect on any riparian habitat or natural community, nor would it result in direct removal, filling, or hydrological interruption of waters or wetlands. No direct impact would result.

Secondary impacts to riparian habitat, sensitive natural community, wetlands, and waters could occur if Project construction were to substantially and adversely affect water quality in Los

Gatos Creek such that established water quality objectives are adversely affected. Valley Water standard BMPs that would be implemented to protect water quality include **BMP WQ-4 (Limit Impacts from Staging and Stockpiling Materials), BMP WQ-9 (Use Seeding for Erosion Control, Weed Suppression, and Site Improvement), BMP WQ-11 (Maintain Clean Conditions at Work Sites), BMP WQ-16 (Prevent Stormwater Pollution), BMP HM-7 (Restrict Vehicle and Equipment Cleaning to Appropriate Locations), BMP HM-8 (Ensure Proper Vehicle and Equipment Fueling and Maintenance), BMP HM-9 (Ensure Proper Hazardous Materials Management), and BMP HM-10 (Utilize Spill Prevention Measures)**. VHP Aquatic AMMs that would be implemented to protect water quality include: **Aquatic AMMs 1, 2, 3, 4, 5, 7, 8, 11, 12, 49, 58, 62, 63, 65, 66, 67, 68, 72, 75, 76, 83, 84, 85, 87, 94, 97, 100, 101, 102, 103, 104, and 105.** Implementation of these standard BMPs and Aquatic AMMs would protect water quality and prevent significant impacts to riparian habitat and state and federally protected wetlands. The impact is less than significant. No mitigation is required.

(d) Less Than Significant Impact. Both the VPS site and Off-site Staging Area are enclosed in chain link fencing and do not serve as migration corridors for any wildlife species. The Los Gatos Creek corridor adjacent to the VPS site may serve as a movement or migratory corridor but no work in the Los Gatos Creek riparian corridor would occur from implementation of the Project. The work in the Valley Water maintenance road adjacent to Los Gatos Creek would be short-term (less than two weeks) and would not extend into the riparian corridor. Movement by fish and wildlife that currently occurs along Los Gatos Creek would continue unimpeded. The Project would have no effect on breeding areas or wildlife nursery sites. Thus, the impact on wildlife movement, migration corridors, and wildlife nursery sites would be less than significant. No mitigation is required.

(e) No Impact. Based on conceptual project design, three ornamental trees of 3- to 5-inch diameter and possibly other perimeter landscaping located within the fenced VPS site may need to be removed for construction access. The species of the trees that are anticipated to require removal are Holm oak (*Quercus ilex*), Chinese pistachio (*Chinese pistache*), and Privet (*Ligustrum*). Unless less than 4 inches in diameter or an exempt species, trees at the VPS site are likely considered to be protected trees by the Town of Los Gatos Tree Protection Ordinance and would typically require a tree removal permit or pruning permit from the Town of Los Gatos Parks and Public Works Department if removed or if 25% of the tree would be pruned within a 3-year period, respectively. Although Valley Water is not subject to local tree regulations as explained in the regulatory setting above, Valley Water and its construction contractors would voluntarily comply with all applicable requirements of the Los Gatos Tree Protection Ordinance and would obtain any necessary permits required by the Town. Thus, the Project would not conflict with the local tree protection ordinance. No impact would occur.

(f) No Impact. The Project Site and Off-site Staging Area are within the VHP permit area. The Project is a VHP-covered activity and is classified as “Urban Development” (VHP page 2-39), which includes construction, maintenance, and operation of water delivery and storage facilities such as treatment plants, pipelines, percolation ponds, and pump stations.

In accordance with Valley Water’s VHP co-permittee responsibilities, Valley Water would comply with all applicable VHP conditions:

- Condition 1: Avoid Direct Impacts on Legally Protected Plant and Wildlife Species
- Condition 3: Maintain Hydrologic Conditions and Protect Water Quality

Condition 3 requires implementation of applicable VHP Aquatic AMMs to protect water quality and aquatic habitats. The Aquatic AMMs are presented in **Table 5** and discussed throughout this document. Thus, the Project would not conflict with an adopted Habitat Conservation Plan or Natural Community Conservation Plan. No impact would result.

Best Management Practices

BMP 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.

BMP 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 will 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.

BMP 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*.

BMP BI-10: Avoid Animal Entry and Entrapment

All pipes, hoses, or similar structures less than 12 inches diameter will be closed or covered to prevent animal entry. All construction pipes, culverts, or similar structures, greater than 2-inches diameter, stored at a construction site overnight, will be inspected thoroughly for wildlife by qualified biologist or properly trained construction personnel before the pipe is buried, capped, used, or moved. If inspection indicates presence of sensitive or state- or federally listed species inside stored materials or equipment, work on those materials will cease until a qualified biologist determines the appropriate course of action.

To prevent entrapment of animals, all excavations, steep-walled holes or trenches more than 6-inches deep will be secured against animal entry at the close of each day. Any of the following measures may be employed, depending on the size of the hole and method feasibility:

1. Hole to be securely covered (no gaps) with plywood, or similar materials, at the close of each working day, or any time the opening will be left unattended for more than one hour; or

2. In the absence of covers, the excavation will be provided with escape ramps constructed of earth or untreated wood, sloped no steeper than 2:1, and located no farther than 15 feet apart; or

3. In situations where escape ramps are infeasible, the hole or trench will be surrounded by filter fabric fencing or a similar barrier with the bottom edge buried to prevent entry.

BMP BI-11: Minimize Predator-Attraction

Remove trash daily from the worksite to avoid attracting potential predators to the site.

BMP WQ-4: Limit Impacts from Staging and Stockpiling Materials

1. To protect on-site vegetation and water quality, staging areas should occur on access roads, surface streets, or other disturbed areas that are already compacted and only support ruderal vegetation. Similarly, all equipment and materials (e.g., road rock and project spoil) will be contained within the existing service roads, paved roads, or other pre-determined staging areas.

2. Building materials and other project-related materials, including chemicals and sediment, will not be stockpiled or stored where they could spill into water bodies or storm drains.

3. No runoff from the staging areas may be allowed to enter water ways, including the creek channel or storm drains, without being subjected to adequate filtration (e.g., vegetated buffer, swale, hay wattles or bales, silt screens).

4. The discharge of decant water to water ways from any on-site temporary sediment stockpile or storage areas is prohibited.

5. During the wet season, no stockpiled soils will remain exposed, unless surrounded by properly installed and maintained silt fencing or other means of erosion control. During the dry season, exposed, dry stockpiles will be watered, enclosed, covered, or sprayed with non-toxic soil stabilizers.

BMP 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.

BMP 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.

BMP WQ-9: Use Seeding for Erosion Control, Weed Suppression, and Site Improvement

Disturbed areas shall be seeded 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.

BMP WQ-11: Maintain Clean Conditions at Work Sites

The work site, areas adjacent to the work site, and access roads will be maintained in an orderly condition, free and clear from debris and discarded materials on a daily basis. Debris may include unused or discarded construction materials, lunch wrappers, cigarette butts, etc. Personnel will not sweep, grade, or flush surplus materials, rubbish, debris, or dust into storm drains or waterways.

For activities that last more than one day, materials or equipment left on the site overnight will be stored as inconspicuously as possible and will be neatly arranged. Any materials and equipment left on the site overnight will be stored to avoid erosion, leaks, or other potential impacts to water quality.

Upon completion of work, all building materials, debris, unused materials, concrete forms, and other construction-related materials will be removed from the work site. Prevent litter from escaping by covering loads that are being transported to and from site.

BMP 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 will 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, including all products containing plastic or monofilament materials, 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.

BMP 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.

BMP HM-10: Utilize Spill Prevention Measures

Prevent the accidental release of chemicals, fuels, lubricants, and non-storm drainage water following these measures:

1. Field personnel will be appropriately trained in spill prevention, hazardous material control, and cleanup of accidental spills;

2. Equipment and materials for cleanup of spills will be available on site, and spills and leaks will be cleaned up immediately and disposed of according to applicable regulatory requirements;

3. Field personnel will ensure that hazardous materials are properly handled, and natural resources are protected by all reasonable means;

4. Spill prevention kits will always be in close proximity when using hazardous materials (e.g., at crew trucks and other logical locations), and all field personnel will be advised of these locations; and

5. The work site will be routinely inspected to verify that spill prevention and response measures are properly implemented and maintained.

Aquatic AMMs

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

AMM 2: Reduce stream pollution by removing pollutants from surface runoff before the polluted surface runoff reaches local streams.

AMM 3: Maintain the current hydrograph and, to the extent possible, restore the hydrograph to more closely resemble predevelopment conditions.

AMM 4: Reduce the potential for scour at stormwater outlets to streams by controlling the rate of flow into the streams.

AMM 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.

AMM 7: Personnel shall prevent the accidental release of chemicals, fuels, lubricants, and non-storm drainage water into channels.

AMM 8: Spill prevention kits shall always be in close proximity when using hazardous materials (e.g., crew trucks and other logical locations).

AMM 11: Vehicles shall be washed only at approved areas. No washing of vehicles shall occur at job sites.

AMM 12: No equipment servicing shall be done in the stream channel or immediate flood plain, unless equipment stationed in these locations cannot be readily relocated (i.e., pumps, generators).

AMM 29: Existing native vegetation shall be retained by removing only as much vegetation as necessary to accommodate the trail clearing width. Maintenance roads should be used to avoid effects on riparian corridors.

AMM 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.

AMM 31: When conducting vegetation management, retain as much understory brush and as many trees as feasible, emphasizing shade producing and bank stabilizing vegetation. If riparian vegetation is to be removed with chainsaws, consider using saws currently available that operate with vegetable-based bar oil.

AMM 40: Maintain native shrubs, trees and groundcover whenever possible and revegetate disturbed areas with local native or non-invasive plants.

AMM 49: The project or activity must be designed to avoid the removal of riparian vegetation, if feasible. If the removal 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.

AMM 58: Existing access routes and levee roads shall be used if available to minimize impacts of new construction in special status species habitats and riparian zones.

AMM 61: Minimize ground disturbance to the smallest area feasible.

AMM 62: Use existing roads for access and disturbed area for staging as site constraints allow. Off-road travel will avoid sensitive communities such as wetlands and known occurrences of covered plants.

AMM 63: Prepare and implement sediment erosion control plans.

AMM 64: No winter grading unless approved by City Engineer and specific erosion control measures are incorporated.

AMM 65: Control exposed soil by stabilizing slopes (e.g., with erosion control blankets) and protecting channels (e.g., using silt fences or straw wattles).

AMM 66: Control sediment runoff using sandbag barriers or straw wattles.

AMM 67: No stockpiling or placement of erodible materials in waterways or along areas of natural stormwater flow where materials could be washed into waterways.

AMM 68: Stabilize stockpiled soil with geotextile or plastic covers.

AMM 69: Maintain construction activities within a defined project area to reduce the amount of disturbed area.

AMM 70: Only clear/prepare land which will be actively under construction in the near term.

AMM 71: Preserve existing vegetation to the extent possible.

AMM 72: Equipment storage, fueling and staging areas will be sited on disturbed areas or non-sensitive habitat outside of a stream channel.

AMM 74: Stabilize site ingress/egress locations.

AMM 75: Dispose of all construction waste in designated areas and prevent stormwater from flowing onto or off of these areas.

AMM 76: Prevent spills and clean up spilled materials.

AMM 83: Sediments will be stored and transported in a manner that minimizes water quality impacts. If soil is stockpiled, no runoff will be allowed to flow back to the channel.

AMM 84: 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. Fiber rolls used for erosion control will be certified as free of noxious weed seed. Filter fences and mesh will be of material that will not entrap reptiles and amphibians. Erosion control measures will be placed between the outer edge of the buffer and the project site.

AMM 85: 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. Fiber rolls used for erosion control will be certified as free of noxious weed seed. Filter fences and mesh will be of material that will not entrap reptiles and amphibians. Erosion control measures will be placed between the outer edge of the buffer and the project site.

AMM 87: Vehicles operated within and adjacent to streams will be checks and maintained daily to prevent leaks of materials that, if introduced to the water could be deleterious to aquatic life.

AMM 88: Vehicles and equipment will be parked on pavement, existing roads, and previously disturbed areas.

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

AMM 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.

AMM 94: Personnel shall use existing access ramps and roads if available. If temporary access points are necessary, they shall be constructed in a manner that minimizes impacts to streams.

AMM 95: To prevent inadvertent entrapment of animals during excavation, all excavated, steep-walled holes or trenches more than 2-feet deep will be covered at the close of each working day by plywood or similar materials or provided with one or more escape ramps constructed of earth fill or wooden planks.

AMM 96: Isolate the construction area from flowing water until project materials are installed and erosion protection is in place.

AMM 97: Erosion control measures shall be in place at all times during construction. Do not start construction until all temporary control devices (straw bales, silt fences, etc.) are in place downstream of project site.

AMM 100: Potential contaminating materials must be stored in covered storage areas or secondary containment that is impervious to leaks and spills.

AMM 101: Runoff pathways shall be free of trash containers or trash storage areas. Trash storage areas shall be screened or walled.

AMM 102: Immediately after project completion and before close of seasonal work window, stabilize all exposed soil with mulch, seeding, and/or placement of erosion control blankets.

AMM 103: All disturbed soils will be revegetated with native plants and/or grasses or sterile nonnative species suitable for the altered soil conditions upon completion of construction. 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. All disturbed areas that have been compacted shall be de-compacted prior to planting or seeding. Cut-and-fill slopes will be planted with local native or non-invasive plants suitable for the altered soil conditions.

AMM 104: Measures will be utilized on site to prevent erosion along streams (e.g., from road cuts or other grading), including in streams that cross or are adjacent to the project proponent's property. Erosion control measures will utilize natural methods such as erosion control mats or fabric, contour wattling, brush mattresses, or brush layers. For more approaches and detail, please see the *Bank Protection/ Erosion Repair*

Design Guide in the Santa Clara Valley Water Resources Protection Collaborative's *User Manual: Guidelines & Standards for Land Use Near Streams* (Santa Clara Valley Water Resources Protection Collaborative 2006)

AMM 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.

AMM 115: All construction pipes, culverts, or similar structures with a diameter of 4 inches or greater that are stored at a construction site for one or more overnight periods will be thoroughly inspected for wildlife by properly trained construction personnel before the pipe is subsequently buried, capped, or otherwise used or moved in anyway.

Mitigation Measures

Mitigation Measure MM BIO-01: Environmental Awareness Training.

All construction personnel involved in the Project shall attend environmental awareness training prior to mobilization and construction. Training shall be conducted by a pre-approved qualified biologist and shall involve the presentation of sensitive biological resources with potential to occur at the Project Site. The training shall include paper handouts that describe each resource with respect to listing status, habitat preferences, distinguishing physical characteristics, causes of its decline, and all associated Best Management Practices (BMPs) and Aquatic Avoidance and Minimization Measures (AMMs). Handouts shall include photographs to facilitate identification by the personnel. Compliance with this measure shall be verified through construction inspections and record keeping kept on site by the Construction Manager.

Mitigation Measure MM BIO-02: Roosting Bats.

The following measures shall be implemented to avoid or minimize impacts to roosting bats:

a. **Establish No-Disturbance Buffer if Roosts are Found During Pre-Construction Surveys or During Construction.** If roosts are found during the pre-construction biological surveys or during construction in areas where they might be disturbed by noise or vibration associated with Project activities, the qualified biologist, approved by Valley Water, shall mark an appropriate no-disturbance buffer around the roost(s) to ensure that the minimum distance provided in the table below is maintained between the construction activity/equipment and the bat roost(s).

b. **Delay Work if Roosts are Found During Pre-Construction Surveys or During Construction and Buffer is Deemed Infeasible.** If it is not possible to maintain an appropriate buffer during Project construction, work that could disturb special-status bats shall be delayed by the Project contractor until the qualified biologist determines any individuals have left the active work area of their own volition.

c. **Exclusion from Potential Roosting Habitat.** If potential roosting habitat is observed in areas where they could be disturbed by construction activities, and it is infeasible to establish an appropriate no disturbance buffer or delay work, exclusion devices shall be installed in these areas outside of the maternity season and before the start of construction. Before installing exclusion devices the biologist shall thoroughly investigate the roosting habitat to ensure no bats are present. If bats are detected, one-way doors or acoustic deterrents shall be installed. Once it is confirmed that no bats are present, the qualified biologist shall proceed with installing hardware cloth, expandable foam, or other appropriate materials to seal off the potential roosting habitat (H.T. Harvey, 2021).

d. **Minimize Noise Disturbance to Roosts.** Construction equipment that emits high frequency sounds (e.g., generators) shall be housed in equipment enclosures to attenuate operational noise.

e. **Avoid Impacts to Foliage-Roosting Bats.** To avoid impacts to individual foliage-roosting bats from vegetation trimming or removal activities:

(1) The qualified biologist shall conduct a visual survey for bats immediately prior to trimming or removal of vegetation at specific locations that could provide suitable roosting habitat to ensure bats are not present during these activities. If bats are observed, work in areas with potential to disturb roosting bats shall be delayed until the individual(s) have left the area of their own volition.

(2) Excessive vegetation removal shall be avoided and shall be limited to only what is necessary to conduct work activities safely and effectively.

f. **Minimize Light Pollution.** Nighttime Project lighting shall be avoided, minimized, or shielded to the extent feasible. Lights associated with construction activities shall be oriented towards the active construction area and developed areas as opposed to the riparian corridor or other natural habitats. Bats are more tolerant of low-intensity red or amber light than bright white light; therefore, low-intensity red or amber lighting shall be used where nighttime lighting cannot be avoided or shielded.

Table 15: Minimum Buffer Distances for Bat Roosts

Bat Species	Minimum Distance (in feet) Between Construction Activity/Equipment and Bat Roosts					
	Construction Trucks and Heavy Equipment*	Small Vehicles	Drilling, Trenching, and Small Equipment	Light Source without Shielding	Pedestrian Traffic	Stationary Diesel/ Gasoline Exhaust Sources > 2 minutes
Pallid bat, Townsend's big-eared bat	120	90	150	400	65	250
Other species of bats in California	100	65	150	300	65	250
Yuma myotis, Mexican fee-tailed bat	90	65	150	250	65	250

SOURCE: H.T. Harvey & Associates, 2021.

Mitigation Measure MM BIO-03: Dusky-Footed Woodrat.

Pre-construction surveys of the Project Site and Off-site Staging Area shall be conducted by a pre-approved qualified wildlife biologist within 14 days prior to the start of construction. If woodrat nests are found and are occupied at the time of the pre-construction survey, the qualified biologist shall document the location(s) of the nest(s) on the site plan and Project construction documents and identify appropriate avoidance or minimization measures based on the proximity of the nest, the nature of construction activities, and professional judgement. If it is feasible to establish a no-work buffer around an active nest, the biologist shall mark the limits of the no-work buffer in the field, conduct awareness training for all construction workers on their first day of work, and monitor the buffer to ensure it remains marked and undisturbed throughout construction. Impacts to individual woodrats shall be avoided by allowing the animal to move out of harm's way on its own or, if feasible and appropriate, allowing the individual to remain where it is and restricting work in that area (establishing a no-work buffer).

If an occupied nest cannot be avoided without significantly impacting the nest or the individual, work shall cease in the area, and the biologist shall consult with CDFW to identify an appropriate location with suitable woodrat habitat and food resources for nest relocation. Once the location is approved by CDFW, woodrat nests shall be moved, under the supervision of the approved biologist, after dark to minimize predation.

Mitigation Measure MM BIO-04: Southwestern Pond Turtle.

Silt fencing shall be erected around active work areas to protect water quality and prevent individual wildlife, including southwestern pond turtles, from entering work areas and being crushed, trapped, or otherwise killed by construction equipment. Silt fencing shall be monitored at least once a week throughout construction to ensure it is installed properly and in good working condition. If silt fencing cannot remain in place for the entire construction duration, a qualified biological monitor shall be onsite when the fencing is not in place to ensure no turtles enter the active work area.

Individual southwestern pond turtles found at the Project Site during construction activities shall be relocated to suitable habitat by a qualified biologist that has been pre-approved by the Valley Habitat Agency.

Mitigation Measure MM BIO-05: Biological Surveys after Lapse in Construction.

If there is a two week or longer lapse in construction activities within the Study Area, the pre-construction survey for all sensitive biological resources shall be repeated, by the pre-approved qualified biologist, to demonstrate the site remains clear.

V. Cultural Resources

Would the Project:	**Potentially Significant Impact**	**Less than Significant with Mitigation Incorporated**	**Less Than Significant Impact**	**No Impact**
a. Cause a substantial adverse change in the significance of a historical resource as defined in Section 15064.5?				X
b. Cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5?			X	
c. Disturb any human remains, including those interred outside of formal cemeteries?			X	

Regulatory Framework

Public Resources Code Section 21083.2 requires that the CEQA Lead Agency determine whether a project may have a significant effect on unique archaeological resources. A unique archaeological resource is defined in as an archaeological artifact, object, or site about which it can be clearly demonstrated that there is a high probability that it:

- Contains information needed to answer important scientific research questions, and there is demonstrable public interest in that information;
- Has a special or particular quality, such as being the oldest of its type or the best available example of its type; or
- Is directly associated with a scientifically recognized important prehistoric or historic event or person.

Per Section 15064.5 of the CEQA Guidelines, CEQA Lead Agencies must also evaluate a project's potential to cause a substantial adverse change in the significance of a historic resource. Historical resources include the following:

- Resources listed in, or determined to be eligible for listing in, the California Register of Historical Resources (CRHR) (Public Resources Code Section 5024.1);
- Resources included in a local register of historical resources (Public Resources Code Section 5020.1(k)), or identified as significant in a historic resource survey meeting the requirements of Public Resources Code Section 5024.1(g); or
- Any object, building, structure, site, area, place, record, or manuscript which a CEQA 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 determination is supported by substantial evidence in light of the whole record.

Properties that are listed in or eligible for listing in the National Register of Historic Places pursuant to Section 106 of the National Historic Preservation Act are considered eligible for listing in the CRHR and thus are significant historical resources for the purpose of CEQA (Public Resources Code Section 5024.1(d)(1)).

Section 7050.5 of the California Health and Safety Code requires that if human remains are found during construction or excavation, the activities be stopped until the county coroner can determine if the remains are Native American. If the remains are determined to be Native American, the coroner must then contact the Native American Heritage Commission (NAHC), which has jurisdiction pursuant to Public Resources Code Section 5097.

Phase I Cultural Resources Assessment

A cultural resources assessment for the proposed Project was conducted by BCR Consulting, LLC and dated June 3, 2022 (BCR Consulting, 2022). BCR Consulting reviewed and summarized a cultural resources records search performed by the Northwest Information Center (NWIC) on November 19, 2021. This research revealed that 26 cultural resource studies have been completed and six cultural resources have been identified within 0.5-mile of the VPS. The previously recorded resources are historic-period single-family residences and a historic-period ranch. The VPS has never been subject to a previous cultural resource assessment, and no cultural resources have been previously identified within its boundaries.

BCR Consulting also conducted an intensive-level cultural resource field survey of the Project Site and Off-site Staging Area on May 3, 2022. The field survey did not result in the recordation of any new cultural resources and no evidence of cultural resource sensitivity or geoarchaeological context was observed.

The cultural resources Area of Potential Effect (APE) for the Project consists of the horizontal and vertical limit of the Project Site and includes the area in which significant impacts or adverse effects to Historical Resources or Historic Properties could occur as a result of the Project. The horizontal APE for the proposed Project is comprised of the construction work areas. The horizontal APE is located entirely within previously disturbed areas. The vertical APE is the maximum depth below the ground surface to which Project-related excavations would extend (5 feet) (BCR Consulting, 2022). The vertical APE is within the 7 feet of engineered fill that was placed on the site when the VPS was constructed in 1975.

Cultural Setting

Prehistoric Ethnography

The Project area is situated within the traditional boundaries of the Tamien sub-group of the Costanoan people. Costanoan territory ranges from the southern San Francisco Bay in the north, along the coast to the Sur River in the south, and is bounded on the east by California’s Diablo Range. The Costanoan designation is linguistic and comprises eight distinct languages that were divided into approximately 50 autonomous tribelets. Like many other California natives, the Costanoans relied on hunting and gathering for subsistence, although their relatively sedentary settlement pattern and high population necessitated careful land management traditions. Acorns were a staple, while roots, berries, and various other vegetation and hunted mammals supplemented their diet.

History

Historic-era California is generally divided into three periods: the Spanish or Mission Period (1769 to 1821), the Mexican or Rancho Period (1821 to 1848), and the American Period (1848 to present).

Spanish Period

The Spanish period (1769-1821) is represented by exploration of the region; establishment of Mission San Juan Bautista; and the introduction of livestock, agricultural goods, and European architecture and construction techniques. Spanish influence continued to some extent after 1821 due to the continued implementation of the mission system.

Mexican Period

The Mexican period (1821-1848) began with Mexican independence from Spain and continued until the end of the Mexican American War. The Secularization Act resulted in the transfer, through land grants (called ranchos) of large mission tracts to politically prominent individuals. At that time, cattle ranching was a more substantial business than farming and, until the Gold Rush of 1849, livestock and horticulture dominated California's economy.

American Period

The American Period, 1848–Present, began with the Treaty of Guadalupe Hidalgo. In 1850, California was accepted into the Union of the United States primarily due to the population increase created by the Gold Rush. The cattle industry reached its greatest prosperity during the first years of the American Period. Mexican Period land grants had created large pastoral estates in California, and demand for beef during the Gold Rush led to a cattle boom that lasted from 1849–1855. However, beginning about 1855, the demand for beef began to decline due to imports of sheep from New Mexico and cattle from the Mississippi and Missouri Valleys. When the beef market collapsed, many California ranchers lost their ranchos through foreclosure. This set the stage for the development of agricultural and municipal economies that proliferated during 20th century and continue to this day. Economic and ethnic diversification and growth have resulted in California’s most visible 20th century hallmarks. Prior to World War II agriculture, oil, tourism, railroad, and film industries all flourished, and while the great the Great Depression of the 1930s slowed (and in many cases stopped) growth, these all remained important throughout the century. The wartime economy helped alleviate many causes of the Great Depression, and the subsequent years saw further diversification in which the aerospace and electronics industries emerged. During World War II, many people had relocated to California in support of the military industrial complex, and a large number remained post-war in search of employment and to start families. The subsequent population boom coincided with the greatest economic growth in the history of the state, and accompanied large-scale land subdivision, construction of bedroom communities, and development of a comprehensive freeway system and a state system of higher education. These factors have all helped reshape California’s landscape, economy, and material culture (BCR Consulting, 2022).

Discussion

The discussion below is based on the *Cultural Resources Assessment for Vasona Pump Station Upgrade Project* prepared by BCR Consulting LLC and dated June 3, 2022.

(a) No Impact. No historical resources, as defined in Section 15064.5 of the CEQA Guidelines, were identified at the Project Site or Off-site Staging Area. VPS was initially developed in 1975, so the initial installations are not of sufficient age to warrant consideration as a significant resource. The Proposed Project would not cause a substantial adverse change to a historic resource and there would be no impact.

(b) Less Than Significant Impact. No archaeological resources, as defined in Section 15064.5 of the CEQA Guidelines, have been identified at the VPS or Off-site Staging Area through archival research. Since Project-related construction would not involve excavation in native soils, archaeological remains in their original depositional context would not be encountered. In the highly unlikely chance that archaeological artifacts are discovered in fill material, these items would be without context and therefore not considered significant. In addition, implementation of Valley Water’s standard **BMP CU-1 (Accidental Discovery of Archaeological Artifacts or Burial Remains)** would ensure substantial adverse changes to archaeological resources do not occur by requiring work to stop if archeological resources are found, establishing a no-work buffer within 100 feet of the find, and following specific protocols for identification and evaluation of the find. The impact on archeological resources would be less than significant.

(c) Less Than Significant Impact. Human remains are unlikely to occur at the Project Site. In addition, implementation of standard precautionary measures for the inadvertent discovery of unknown finds consistent with **BMP CU-1 (Accidental Discovery of Archeological Artifacts or Burial Remains)** would ensure significant disturbance to human remains does not occur by requiring that in the event human remains or burial sites are discovered, the County Coroner be immediately notified, and no further excavation or disturbance of the site be allowed within 100 feet unless otherwise authorized by the County Coroner, NAHC, and/or the County Coordinator of Indian Affairs. The impact related to disturbance to human remains would be less than significant. No mitigation is necessary.

Best Management Practices

BMP CU-1: Accidental Discovery of Archaeological Artifacts or Burial Remains

If historical or unique archaeological artifacts are accidentally discovered during construction, work in affected areas will be restricted or stopped until proper protocols are met. Work at the location of the find will halt immediately within 100 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.

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 100 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

Mitigation Measures

No mitigation measures needed.

VI. Energy

Would the Project:	**Potentially Significant Impact**	**Less than Significant With Mitigation Incorporated**	**Less Than Significant Impact**	**No Impact**
a. Result in a potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?			X	
b. Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?				X

Regulatory Framework

<u>California Air Resources Board (CARB) Off-Road Diesel Regulation</u>

Since 2008, all self-propelled off-road diesel vehicles 25 horsepower (hp) or greater used in California and most two-engine vehicles (except on-road two-engine sweepers), including cranes, forklifts, excavators, bulldozers, etc. are subject to CARB's Regulation for In-Use Off-Road Diesel-Fueled Fleets (Off-Road Diesel Regulation), which requires fleets to retire older vehicles and replace the retired vehicles with newer vehicles, or reduce emissions by installing verified diesel emission control strategies in older engines, and restricting the addition of older vehicles to fleets. Although the overall purpose of the Off-Road Diesel Regulation is to reduce emissions of oxides of nitrogen (NO_X) and particulate matter (PM) from off-road diesel vehicles, as other State regulations force automobile manufacturers to design engines with improved fuel efficiency, by retiring older vehicles and replacing them with newer vehicles, the Off-Road Diesel Regulation also serves to improve fuel efficiency.

Discussion

(a) Less Than Significant Impact. Construction of the Project would require the use of fuels (primarily gasoline and diesel) for a variety of construction activities, including offroad equipment, haul trucks, and employee vehicles. CalEEMod was used to estimate construction-related fuel consumption. It is assumed that construction workers would use cars and light duty trucks (i.e., gasoline fueled) to commute to and from the Project Site over the 18 months of construction and offroad equipment and haul trucks would use diesel fuel. Using standard fuel consumption estimates, construction activities would require approximately 335 gallons of gasoline fuel and approximately 32,485 gallons of diesel fuel (USEIA, 2023).

Valley Water's construction contractor would be required to comply with CARB's Off-Road Diesel Regulation, which, in addition to reducing air pollutant emissions, would also serve to improve fuel efficiency. In addition, the construction contractor would implement **BMP AQ-1 (BAAQMD Dust Control Measures)**, which limits idling times to no more than five minutes and requires that tire inflation be maintained to the manufacturers' specifications, and serves to prevent the wasteful use of fuel. Project construction would represent a "single-event" diesel fuel demand and would not require on-going or permanent commitment of diesel fuel resources for this purpose. Further, the VPS is a key facility used to provide treated water to 2 million people in Santa Clara County. Thus, electricity and fuel consumed during construction of the Project is not a wasteful use of energy and fuel. Construction-related impacts associated with the wasteful, inefficient, or unnecessary consumption of energy resources would be less than significant impact.

Future operation and maintenance of the VPS would result in the consumption of electricity, natural gas, and diesel fuel. PG&E provides electricity to the Town of Los Gatos, including the VPS. Except for unplanned power outages, the VPS would be operated and maintained predominantly from the regular operation of the facility. However, implementation of the Project would not result in substantive changes to long-term operations and maintenance at the VPS and there would be no substantive changes in long-term energy consumption. Equipment would be operated and maintained in a manner similar to existing conditions involving low levels of activity following Project completion. Further, since no changes in staffing levels are anticipated, there would be no changes in vehicle trips and VMT.

Based on the CalEEMod results and standard fuel conversion factors, Project-related operations would require approximately 6,485 gallons of diesel fuel per year (USEIA, 2023). Because the natural gas backup generator would be used to provide limited power to logistical controls and communications equipment during electrical outages, the amount of natural gas that would be required annually to operate the natural gas generator would be minimal.

With respect to electricity demand, the Project would increase the pumping capacity of the VPS due to the replacement of the two existing 200-hp pumps and two 400-hp pumps with four 600-hp pumps. However, because the VPS is only used on an as-needed basis to boost pressure in raw water pipelines when gravity flow is inadequate to meet demand (approximately two to three months out of the year), all pumps would not be running concurrently, and the new pumps would be equipped with variable frequency drives that would improve energy efficiency. The proposed facility upgrades and improvements would replace outdated infrastructure with new, state-of-the-art, more fuel-efficient equipment.

To calculate the baseline electrical power demand associated with the existing pumps, total electrical power use between 2013 and 2022 (see **Table 16**) for the VPS as a whole was averaged and then adjusted to represent only the electrical power consumed by the existing pumps. From 2013 through 2022, the existing pumps ran for a total of 3,744 hours over 156 days (an average of 374.4 hours per year). The 2013 to 2022 data indicates that the average hourly and average annual electrical power demand for the existing pumps is 462 kWh and 172,855 kWh, respectively.

For the future with-Project scenario, three of the four new pumps were assumed to operate at full load for 24 hours a day three months per year (2,160 hours per year). The estimated average hourly electrical power demand for the new pumps was estimated to be 1,342 kWh. The future with-Project scenario would result in an annual electrical usage of 2,898,720 kWh, or a Project-related increase in annual electrical usage of 2,725,865 kWh. The GHG emissions were estimated based on this future with-Project scenario.

The future with-Project scenario assumes three of the four pumps operating at full load and does not account for the state-of-the-art equipment and new pumps equipped with variable frequency drives that would improve energy efficiency, which would cause the increase in energy use (and GHG emissions) analyzed here to be lower than reported.

The existing 50 kW (67 hp) natural gas generator that provides limited power to logistical controls and communications equipment during power outages is to be replaced with a 100 kW (134 hp) natural gas generator. A new 1,250 kW (1,676 hp) diesel standby generator would provide backup power for the new pumps and other critical equipment in the event of power interruptions. The natural gas and diesel standby generators would be tested monthly for two hours, for a total of 24 hours a year. It was assumed that the standby generators would also be operated for 76 hours a year during power outages (thus, a total of 100 hours per year).

Energy used for future operations and maintenance of the VPS would be used to provide treated water to 2 million people in Santa Clara County and would not be a wasteful, inefficient, or unnecessary consumption of energy resources. The impact during operations and maintenance would be less than significant. No mitigation is required.

Table 16: Estimated Hourly and Annual Energy Use for Existing Pumps vs. New Pumps

ANNUAL ENERGY USE (EXISTING CONDITIONS)			
Year	**Days in Operation**	**Total kWh[1]**	**kWh**
2013	1	19,517	813
2014	0	0	0
2015	7	62,095	941
2016	58	66,9161	1,829
2017	7	83,965	500
2018	0	0	0
2019	6	52,334	363
2020	27	221,183	744
2021	10	92,507	748
2022	40	527,785	1,500
		Average Hourly Energy Use	**462 kWh**
Proposed Project Conditions			
Three Pumps Operating at 100%			**1,800 hp**
Hourly Energy Use			**1,342 kWh**

[1] Total kWh has been adjusted to remove baseline power requirements for VPS not associated with the Project operations (e.g., lighting, building electrical needs), which are approximately 13,000 kWh per month based upon historic data.

(b) No Impact. The Project would replace key electrical, mechanical, and control systems equipment (primarily pumps, valves and SCADA) and install supporting systems such concrete equipment pads, equipment enclosures, overhead electrical busways, interconnecting electrical conduit, wire, and piping (both underground and above-grade). Some components to be replaced or upgraded were installed in 1975 when the VPS was initially constructed; all of the equipment to be replaced or upgraded is outdated. The Project would replace outdated equipment with new state-of-the art, energy-efficient equipment at the VPS and would not conflict with nor obstruct implementation of any state or local energy efficiency plans. No impact would result.

Best Management Measures

BMP AQ-1: BAAQMD Dust Control Measures

The following Valley Water Standard BMPs BAAQMD Dust Control Measures for fugitive dust control measures will be implemented:

- All exposed surfaces (e.g., parking areas, staging areas, soil piles, graded areas, and unpaved access roads) shall be watered two times per day. When accessible, recycled or non-potable water shall be used for dust control activities;
- All haul trucks transporting soil, sand, or other loose material off-site shall be covered;
- 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;

- Water used to wash the various exposed surfaces (e.g., parking areas, staging areas, soil piles, graded areas, etc.) will not be allowed to enter waterways;
- All vehicle speeds on unpaved roads shall be limited to 15 mph;
- 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;
- 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), and this requirement shall be clearly communicated to construction workers (such as verbiage in contracts and clear signage at all access points);
- All construction equipment shall be maintained and properly tuned in accordance with manufacturer‘s specifications, and all equipment shall be checked by a certified visible emission evaluator;
- Correct tire inflation shall be maintained in accordance with manufacturer‘s specifications on wheeled equipment and vehicles to prevent excessive rolling resistance; and,
- Post a publicly visible sign with a telephone number and contact person at Valley Water to address dust complaints; any complaints shall be responded to and take corrective action within 48 hours. In addition, a BAAQMD telephone number with any applicable regulations will be included.

Mitigation Measures

No mitigation measures needed.

VII. Geology and Soils

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

Regulatory Framework

Alquist-Priolo Earthquake Fault Zoning Act

The Alquist-Priolo Earthquake Fault Zoning Act (Alquist-Priolo Act) (PRC Section 2621 et seq.) was passed to reduce the risk to life and property from surface faulting in California. The Alquist-Priolo Act prohibits construction of most types of structures intended for human occupancy directly on or across the surface traces of active faults and strictly regulates construction in the corridors along active faults (earthquake fault zones). It also defines criteria for identifying active faults, giving legal weight to terms such as active, and establishes a process for reviewing building proposals in and adjacent to earthquake fault zones.

Under the Alquist-Priolo Act, faults are zoned and construction along or across them is regulated if they are active and "well-defined". A fault is considered active if it has had surface displacement within Holocene time (the last 11,700 years). A fault is considered well-defined if its trace can be clearly identified by a trained geologist at the ground surface or in the shallow subsurface, using standard professional techniques, criteria, and judgment. Under the Alquist-Priolo Act, the California Geological Survey (CGS) is required to map earthquake fault zones and provide them to all affected cities, counties, and state agencies.

Seismic Hazards Mapping Act

The Seismic Hazards Mapping Act of 1990 (PRC Sections 2690–2699.6) establishes statewide minimum public safety standards for mitigation of earthquake hazards. While the Alquist-Priolo Earthquake Fault Zoning Act addresses surface fault rupture, the Seismic Hazards Mapping Act addresses other earthquake-related hazards, such as strong ground shaking, liquefaction, and seismically induced landslides. Its provisions are similar to the provisions of the Alquist-Priolo Earthquake Fault Zoning Act: the CGS is charged with identifying and mapping areas at risk of strong ground shaking, liquefaction, and landslides, and cities and counties are required to regulate development within mapped seismic hazard zones. The Seismic Hazards Mapping Act also addresses expansive soils, settlement, and slope stability. Cities and counties may withhold the development permits for a site within a seismic hazard zone until appropriate site-specific geologic and/or geotechnical investigations have been carried out and measures to reduce potential damage have been incorporated into the development plans. The CGS also provides guidelines for evaluating and mitigating earthquake-induced liquefaction and landslide hazards within CGS-designated hazard zones.

California Building Code

The California Building Code establishes regulations for building design and safety related to seismicity, materials and foundations which are implemented through the standard application of plan check and inspections for grading and building. Direct risks posed to structures by ground shaking are mitigated through the structural design provisions of the California Building Code.

Existing Conditions

Regional Geologic Setting

The Project is within the Coast Ranges Geomorphic Province of California, which is characterized by a series of roughly parallel mountain ranges, valleys, and regional faults that trend southeast-northwest. The San Francisco Bay region is one of the most seismically active areas in North America and is dominated by the San Andreas Fault system, which is located approximately 5.4 miles southwest of the VPS. Other major active faults in the region include the San Gregorio Fault (21 miles southwest); the Hayward Fault (15 miles northeast), and the Calaveras Fault (14.5 miles northeast).

Site Conditions

The VPS is within a CGS “zone of required investigation” for earthquake-induced soil liquefaction and a Santa Clara County Liquefaction Hazard Zone, the limits of which correspond with undifferentiated alluvial deposits (alluvial gravel, sand, silt, and clay) adjacent to Los Gatos Creek (A3GEO, 2013). Liquefaction is a phenomenon by which loose, clean, coarse-grained soils (i.e., sands and gravels) located in groundwater can lose strength (i.e. liquefy), compress (i.e. settle), and gain mobility (i.e. flow) as a result of earthquake-induced ground shaking.

Geologic hazards and conditions at the VPS were characterized in a 2013 site-specific geotechnical investigation (A3GEO, 2013). The 2013 investigation evaluated liquefaction, landslide, and lateral spreading hazards at the VPS using methods outlined in CGS Special

Publication 117A (CGS, 2008).The findings of the 2013 investigation are provided in the pertinent impact discussions, below. Since the maximum depth of excavation that would occur during Project construction is 5 feet, the vertical area of potential effect is entirely within engineered fill and resources associated with native soils such as paleontological resources would not likely be impacted.

The following discussions are based on the *Geotechnical Investigation for the Vasona Meter Shop and Pump Station* and the Project-specific improvements, design, and construction requirements.

Discussion

(a.i) Less Than Significant Impact. Fault rupture typically occurs along active faults. As stated above, a fault is considered active if one or more of its segments or strands have shown evidence of surface displacement during the Holocene (within the last 11,700 years).

The VPS is not located in an Alquist-Priolo Earthquake Fault Zone and no known active faults traverse the site. The nearest Alquist-Priolo Earthquake Fault Zone is associated with the San Andreas Fault Zone, which is located about 5.4 miles southwest of the Project Site in the Santa Cruz Mountains (CGS, 2021).

The Monte Vista-Shannon Fault, located 3,600 feet (0.7 mile) southwest of the VPS, has shown some evidence of displacement during the Holocene but the evidence has not been significant enough to be zoned as active by CGS. However, Santa Clara County's Fault Rupture Zone maps designate the Monte Vista-Shannon Fault as a Fault Rupture Hazard Zone (Santa Clara County Planning Office, 2015). (Fault Rupture Zones are regulatory zones around active faults and do not correspond with Alquist-Priolo Earthquake Fault Zones.) The nearest edge of this Monte Vista-Shannon Fault Rupture Hazard Zone is approximately 2,000 feet southwest of the VPS.

Although the potential for surface fault rupture at the VPS cannot be completely ruled out, because the VPS is not located within an Alquist Priolo Earthquake Fault Zone or Santa Clara County Fault Rupture Hazard Zone, the impact is considered less than significant and no mitigation is required.

(a.ii) Less Than Significant Impact. The VPS and the entire Bay Area is in a seismically active region and is subject to strong seismic ground shaking. Ground shaking is a general term referring to all aspects of motion of the earth's surface resulting from an earthquake and is normally the major cause of damage in seismic events. The extent of ground-shaking is determined by the magnitude and intensity of the earthquake, distance from the epicenter, and local geologic conditions.

Major active faults in the region include the San Andreas Fault Zone (5.4 miles southwest of the VPS), the San Gregorio Fault (21 miles southwest); the Hayward Fault (15 miles northeast), and the Calaveras Fault (14.5 miles northeast). The third Uniform California Earthquake Rupture Forecast (UCERF3) estimates that the probability of at least one magnitude 6.7 or greater earthquake occurring in the San Francisco Bay Region before the year 2045 is 67 percent (Field, E.H., 2014).

Due to the VPS's proximity to multiple fault lines, an earthquake along one of the faults within the Bay Area could subject the VPS to strong seismic ground shaking. However, the proposed Project would be designed in accordance with engineering and construction standards that address seismic risks, including the structural design provisions of the California Building Code.

The potential for risk of loss, injury, or death from strong seismic-ground shaking would be less than significant and no mitigation is necessary.

(a.iii) No Impact. The VPS is mapped within a Santa Clara County Liquefaction Hazard Zone and CGS "zone of required investigation" for earthquake-induced soil liquefaction, the limits of which generally correspond to the areas mapped as undifferentiated alluvial deposits adjacent to Los Gatos Creek (A3GEO, 2013). Liquefaction is a phenomenon whereby certain types of soils below groundwater may lose strength, densify, and gain mobility (i.e., flow) in response to earthquake shaking. Soils that are most likely to experience liquefaction include loose, clean, coarse-grained soils (i.e., sands and gravels) that are located below groundwater.

The 2013 site-specific geotechnical investigation evaluated the liquefaction potential of subsurface materials at the VPS by determining: (1) if soil layers exist beneath the VPS that could experience liquefaction (or similar dynamic strength loss) in a large earthquake; and (2) whether there were continuous layers of these materials beneath the VPS that would provide a weakened plane along which earthquake-induced lateral spreading and/or landsliding might occur towards Los Gatos Creek (A3GEO, 2013).

Three geotechnical borings were drilled at the VPS to assess subsurface conditions. Subsurface soils in all three borings consisted of about 7 feet of fill overlying alluvium. A suite of geotechnical laboratory tests were performed to evaluate the liquefaction potential of the underlying alluvial soils. Based on the laboratory results, one soil layer encountered 18 to 20 feet below the ground surface (bgs) between the Meter Shop and the creek discharge dissipation structure was found to be susceptible to liquefaction.

An evaluation of liquefaction triggering was then conducted based on an earthquake moment magnitude (MW) of 7.9 with a peak ground acceleration (PGA) of 0.543g, and a groundwater depth of 10 feet bgs. The 2013 investigation concluded the liquefaction hazard at the Project Site is low. Based on the 2013 findings, the 7 feet of engineered fill overlying the site, and the fact that the maximum depth of trenching and excavations that would be required during construction of the proposed Project is 3 to 5 feet, the Project would not change liquefaction hazards at the VPS. No impact would result, and no mitigation is required.

(a.iv) No Impact. The VPS is not within a CGS-defined "zone of required investigation" for earthquake-induced landslides and there is no evidence of any landslides having previously occurred in the immediate vicinity of the Project Site. The VPS and surrounding parcels are generally flat, sloping gently towards Los Gatos Creek, which is located approximately 170 feet from the VPS perimeter fencing. Due to this setback, there is essentially no potential for a landslide that toes out in the 16-foot-creek channel to affect the proposed Project. No impact related to an increased risk of structures or people to be affected by landslides would result from implementation of the Project.

(b) Less Than Significant Impact. The Project Site is gently-sloping and underlain by approximately 7 feet of engineered fill. All the proposed improvements and upgrades would be constructed in previously disturbed areas, and most would be installed inside of existing structures such as the Pump Building, Valve Yard, and Pilot Building. However, ground disturbance and minor trenching and excavations could potentially increase soil erosion at the site temporarily.

Implementation of the proposed Project would result in approximately 6,659 square feet of ground disturbance and would require trenching for conduit and minor excavations for the concrete pads. Trenches and excavations would extend up to 3 to 5 feet below the ground surface. Although minor, these trenches and excavations, and other ground-disturbing activities at the Project Site, could temporarily destabilize soil and increase erosion.

As described in **Section 2**, Valley Water's standard BMPs have been incorporated into the proposed Project and include measures to protect water quality, some of which also serve to control soil erosion. These include **BMP WQ-4 (Limit Impacts from Staging and Stockpiling of Materials)**, which requires that staging be located in disturbed areas that are paved or already compacted, and **BMP WQ-16 (Prevent Stormwater Pollution)**, which requires that soils exposed during construction be stabilized to control erosion. Valley Water is also required to implement the VHP aquatic avoidance and minimization measures, which include a menu of construction practices to control soil erosion. The impact related to loss of topsoil and increased soil erosion would be less than significant.

(c) Less Than Significant Impact. As explained above under checklist items a.i) and a.iv), the lack of any evidence of any landslides or slope failure in the immediate project vicinity, the gently sloping topography of the VPS and surrounding properties, and the setback from Los Gatos Creek makes the possibility of landslides and ground collapse unlikely. While the Project is located in a Liquefaction Hazard Zone and CGS "zone of required investigation" for earthquake-induced soil liquefaction, as explained above under checklist item a.iii), the 2013 geotechnical investigation determined the liquefaction hazard at the site is low. The maximum depth of trenches and excavations required for Project construction is 3 to 5 feet, making it unlikely for construction to cause slope instability or failure. In addition, the Project would use sound design, building, and grading practices that minimize such hazards. The impact would be less than significant.

(d) No Impact. The Project Site is underlain by 7 feet of engineered fill that was placed there in 1975 when the site was developed and the VPS was constructed. Since Project construction would not involve trenching or excavations greater than 5 feet below the ground surface, all disturbance would occur in developed and previously disturbed areas and within the 7 feet of engineered fill. Soil testing conducted as part of the 2013 geotechnical investigation found the engineered fill to have a low expansion potential. Adherence to standard engineering and construction techniques would further minimize any potential for expansive soils to adversely affect life or property. No impact would result.

(e) No Impact. The Project does not include the use of septic tanks or alternative wastewater disposal systems. Therefore, no impact would result.

(f) No Impact. Project construction would involve trenching and excavations that would be up to 3 to 5 feet deep. All ground disturbance and earthwork would occur in previously disturbed areas and within the 7 feet of engineered fill that was placed at the site when the VPS was constructed in 1975. Thus, there is no potential to encounter paleontological resources in engineered fill. No impact to paleontological resources would result.

Best Management Practices

BMP WQ-4: Limit Impacts from Staging and Stockpiling Materials

1. To protect on-site vegetation and water quality, staging areas should occur on access roads, surface streets, or other disturbed areas that are already compacted and only support ruderal vegetation. Similarly, all equipment and materials (e.g., road rock and Project spoil) will be contained within the existing service roads, paved roads, or other pre-determined staging areas.

2. Building materials and other Project-related materials, including chemicals and sediment, will not be stockpiled or stored where they could spill into water bodies or storm drains.

3. No runoff from the staging areas may be allowed to enter water ways, including the creek channel or storm drains, without being subjected to adequate filtration (e.g., vegetated buffer, swale, hay wattles or bales, silt screens).

4. The discharge of decant water to water ways from any on-site temporary sediment stockpile or storage areas is prohibited.

5. During the wet season, no stockpiled soils will remain exposed, unless surrounded by properly installed and maintained silt fencing or other means of erosion control. During the dry season, exposed, dry stockpiles will be watered, enclosed, covered, or sprayed with non-toxic soil stabilizers.

BMP 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 will 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, including all products containing plastic or monofilament materials, 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.

Mitigation Measures

No mitigation measures needed.

VIII. Greenhouse Gas Emissions

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a. Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?			X	
b. Conflict with any applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?			X	

The following discussion is based on the *Vasona Pump Station Upgrade Air Quality Technical Report* (RCH Group, 2024) (**Appendix A**).

Introduction

Greenhouse gas (GHG) emissions include carbon dioxide (CO_2), methane (CH_4), ozone, water vapor, nitrous oxide (N_2O), and chlorofluorocarbons (CFC). These gases contribute to the Earth's radiation amount by trapping infrared radiation emitted from the Earth's surface, which otherwise would have escaped to space. This process, also known as the Greenhouse Gas Effect, is essential for Earth to be a habitable climate. However, anthropogenic emissions of GHG in excess of natural ambient concentrations are responsible for the enhancement of the Greenhouse Gas Effect, which has led to a current trend of warming of the Earth's climate, known as global warming or climate change. Human activities primarily responsible for emissions of greenhouse gases include industrial/manufacturing, agriculture, utilities, transportation, and residential land uses.

CO2 is the reference gas for climate change because it is the predominant GHG emitted. The effect that each of the aforementioned gases can have on global warming is a combination of the mass of their emissions and their global warming potential (GWP). GWP indicates, on a pound-for-pound basis, how much a gas is predicted to contribute to global warming relative to how much warming would be predicted to be caused by the same mass of CO2. CH4 and N2O are substantially more potent GHG than CO2, with GWP of 25 and 298 times that of CO2, respectively (IPCC, 2014).

In emissions inventories, GHG emissions are typically reported in terms of pounds or metric tons of CO2 equivalents (CO2e). CO2e are calculated as the product of the mass emitted of a given GHG and its specific GWP. While CH4 and N2O have much higher GWP than CO2, CO2 is emitted in such vastly higher quantities that it accounts for the majority of GHG emissions in CO2e.

Regulatory Framework

Federal

The USEPA is responsible for implementing federal policy to address GHG. The federal government administers a wide array of public-private partnerships to reduce the GHG intensity generated in the United States. These programs focus on energy efficiency, renewable energy, methane and other non-CO_2 gases, agricultural practices, and implementation of technologies to achieve GHG reductions.

State

CARB has primary responsibility for the coordination and administration of the federal and state air pollution control programs and reducing GHG emissions in California. Although California has not established ambient air quality standards for GHG, the State has passed numerous laws directing CARB to develop actions to reduce GHG emissions.

Executive Order S-3-05, GHG Emission, issued in June 2005, established the following GHG reduction targets:

- By 2010, California shall reduce GHG emissions to 2000 levels;
- By 2020, California shall reduce GHG emissions to 1990 levels; and
- By 2050, California shall reduce GHG emissions to 80 percent below 1990 levels.

Assembly Bill 32 (AB-32, also known as the *California Global Warming Solutions Act* of 2006), adopted by the California State Legislature in 2006, focuses on reducing GHG emissions in California to 1990 levels by 2020. This represents the first enforceable statewide program to limit emissions of GHG from all major industries with penalties for noncompliance. CARB is required to adopt rules and regulations directing state actions that would achieve GHG emissions reductions equivalent to 1990 statewide levels by 2020. The state achieved its 2020 GHG emissions reductions target of returning to 1990 levels four years earlier than mandated by AB 32.

AB 32 requires CARB to prepare Climate Change Scoping Plans that contain strategies for achieving the maximum technologically feasible and cost-effective GHG emission reduction targets.

In 2022, CARB approved the Third Update to the Climate Change Scoping Plan (2022 Scoping Plan), which lays out a path to achieve targets for carbon neutrality and reduce anthropogenic GHG emissions by 85 percent below 1990 levels no later than 2045, as directed by Assembly Bill 1279 (CARB, 2022). The 2022 Scoping Plan:

- Identifies a path to keep California on track to meet its SB 32 GHG reduction target of at least 40 percent below 1990 emissions by 2030.[4]

- Identifies a technologically feasible, cost-effective path to achieve carbon neutrality by 2045 and a reduction in anthropogenic emissions by 85 percent below 1990 levels.

- Focuses on strategies for reducing California's dependency on petroleum to provide consumers with clean energy options that address climate change, improve air quality, and support economic growth and clean sector jobs.

- Integrates equity and protecting California's most impacted communities as driving principles throughout the document.

[4] Senate Bill (SB) 32 became effective on January 1, 2017, and requires CARB to develop technologically feasible and cost-effective regulations to achieve the targeted 40 percent GHG emission reduction by 2030 set in Executive Order B-30-15.

- Incorporates the contribution of natural and working lands to the state's GHG emissions, as well as their role in achieving carbon neutrality.
- Relies on the most up-to-date science, including the need to deploy all viable tools to address the existential threat that climate change presents, including carbon capture and sequestration, as well as direct air capture.
- Evaluates the substantial health and economic benefits of taking action.
- Identifies key implementation actions to ensure success.

The recommended measures in the 2022 Scoping Plan and previous Scoping Plans are broad policy and regulatory initiatives that will be implemented at the State level and do not relate to the construction and operation of individual projects.

Regional/Local

The BAAQMD is the regional agency with jurisdiction over the nine-county region located in the SFBAAB. The Association of Bay Area Governments, Metropolitan Transportation Commission, county transportation agencies, cities and counties, and various nongovernmental organizations also join of regulations and policies, as well as implementation of extensive education and public outreach programs.

The *BAAQMD 2017 Clean Air Plan* defines a vision for achieving the ambitious GHG reduction targets for 2030 and 2050 and provides a regional climate protection strategy for the Bay Area to achieve the GHG reduction targets. The 2017 Clean Air Plan includes 85 source control measures, many of which are only applicable for regional or government implementation.

Under CEQA, the BAAQMD is a commenting responsible agency for air quality within its jurisdiction or impacting its jurisdiction. The BAAQMD reviews projects to ensure that they would: (1) support the primary goals of the latest Air Quality Plan; (2) include applicable control measures from the Air Quality Plan; and (3) not disrupt or hinder implementation of any Air Quality Plan control measures.

On April 20, 2022, the BAAQMD Board of Directors adopted the *CEQA Thresholds for Evaluating the Significance of Climate Impacts from Land Use Projects and Plans* (Guidance). In its Guidance, BAAQMD recommends thresholds for determining whether a proposed project will have a significant impact on climate change. Under the Guidance, the BAAQMD establishes that if a project would contribute its "fair share" of what will be required to achieve the long-term climate goals in California, then a reviewing agency can find that the impact will not be significant because the project will help to solve the problem of global climate change.

The Project is considered a stationary source of GHG emissions due to the permits needed to install and operate the standby generators, and the monthly testing and emergency use of the generators. The Project is not considered a land use development project because the VPS was developed in 1975 and the Project would not result in any changes to land use.

BAAQMD 2022 CEQA Air Quality Guidelines

CEQA Guidelines Section 15064.4 provides guidance to lead agencies for determining the significance of environmental impacts pertaining to GHG emissions. Section 15064.4(a) states that a Lead Agency should make a good-faith effort that is based, to the extent possible, on scientific and factual data to describe, calculate, or estimate the amount of GHG emissions that would result from implementation of a project. CEQA Guidelines Section 15064.4(b) also states that, when assessing the significance of impacts from GHG emissions, a Lead Agency should consider (1) the extent to which the Project may increase or reduce GHG emissions compared with existing conditions, (2) whether the Project's GHG emissions would exceed a threshold of significance that the Lead Agency has determined to be applicable to the Project, and (3) the extent to which the Project would comply with regulations or requirements adopted to implement a statewide, regional, or local plan for the reduction or mitigation of GHG emissions.

In 2022, BAAQMD revised its recommended significance thresholds for GHG emissions and climate change impacts. BAAQMD recommends CEQA Lead Agencies estimate and disclose the construction-related GHG emissions of proposed projects but BAAQMD has not adopted numerical significance thresholds for construction-related emissions. Monthly testing and emergency use of the Project's standby generators is considered a stationary source of GHG emissions requiring permits from BAAQMD for generator installation and operations. BAAQMD adopted a significance threshold of 10,000 metric tons of CO_2e per year for stationary sources of GHG emissions. Since the Project is not a land use development project, the BAAQMD's recommendations for evaluating the GHG emissions generated by land use projects do not apply.

Valley Water Climate Change Action Plan

In 2021, Valley Water published a Climate Change Action Plan (CCAP) is to guide its climate change response through the development of goals and strategies that:

- Reduce Valley Water's contribution to climate change by reducing GHG emissions (mitigation); and

- Enable Valley Water to adapt to the potential impacts of climate change in each of Valley Water's mission areas.

The CCAP describes future climate impacts as well as agency-specific vulnerabilities and risks associated with climate change. The CCAP is intended as a plan that provides goals, establishes strategies, suggests possible actions, and proposes the development of an implementation program to achieve these goals and strategies. The program will instill climate resilience as a priority throughout Valley Water's many areas of work and will build and expand upon Valley Water's many existing climate-related efforts (Valley Water, 2021b).

Goals, strategies, and possible actions were developed to guide Valley Water's climate change efforts. There are seven goals—three mitigation goals and four adaptation goals. The mitigation goals correspond to an internationally recognized system of carbon accounting that divides emissions into three scopes: direct emissions, purchased electricity, and indirect emissions. The adaptation goals correspond to Valley Water's three mission areas, with an additional goal to address emergency preparedness. Each goal contains strategies offering guidance on how to achieve the goal.

Goal 1: Reduce Direct Greenhouse Gas Emissions (Scope 1)

Scope 1 emissions (Direct Emissions) make up a small percentage of Valley Water's annual GHG emissions. In 2016, this category comprised about 13 percent of total recorded emissions. Valley Water plans to continue adding electric vehicles and other fuel-efficient vehicles to its fleet, along with implementing policies to promote EV use. These emissions have been reduced by providing more technology to support remote meetings, reducing the number of trips made, improving the availability of drop-in cubicles and pool vehicles, and by streamlining routes to minimize vehicle miles traveled (VMT). Valley Water plans to continue to replace various types of agency-owned equipment with more fuel efficient or electric models to reduce GHG emissions and updating diesel engines to comply with the Tier 4 diesel emissions mandate.

Valley Water can further lower GHG emissions by improving the efficiency of heating and cooling equipment at Valley Water facilities.

Goal 2: Expand Renewable Energy and Improve Energy Efficiency (Scope 2)

Scope 2 (purchased energy) emissions fluctuated by up to 6,000 metric tons of CO_2e per year due to Valley Water's energy portfolio. Ninety-five percent of Valley Water's purchased electricity is sourced from the Power and Water Resources Pooling Agency (PWRPA), which enables Valley Water to source carbon-free electricity from utility-scale solar and hydroelectric projects. Emissions from PWRPA's electricity vary if environmental conditions change the availability of these forms of electricity. Purchased electricity makes up a small percentage of total GHG emissions.

Valley Water plans to continue to optimize energy use and reduce overall demand for purchased electricity. This can be achieved by improving the efficiency of office equipment and expanding energy and water saving measures through the Green Business Program's certification.

Goal 3: Reduce Indirect Greenhouse Gas Emissions (Scope 3)

GHG emissions (Scope 3) from importing water from the State Water Project consistently make up the largest percentage of Valley Water's GHG emissions. Other sources of imported water—the Central Valley Project and water distributed from the Hetch Hetchy system—use hydropower and therefore do not contribute to Valley Water's emissions. Emissions from imported water comprised about 75 percent of total GHG emissions. Other Scope 3 emissions from fuel use, employee commutes, and business travel remain relatively constant and make up a small portion of total emissions.

Policies that enable telework, alternative schedules, use of public transit, and other ways to reduce VMTs all contribute to reducing indirect GHG emissions. In addition, Valley Water's continuing to invest in EV charging stations and improve the convenience of their use further incentivize low emission commuting.

In 2017, the total GHG emissions associated with Valley Water's operations were 15,300 metric tons of CO_2e. The GHG emissions sequestered or reduced were 19,235 metric tons of CO_2e, for a net reduction of 3,935 metric tons of CO_2e.

Significance Thresholds

Because the issue of global climate change is inherently a cumulative issue, the contribution of the Project GHG emissions to climate change is addressed as a cumulative impact. Some counties, cities, and air districts have developed guidance and thresholds for determining the significance of GHG emissions that occur within their jurisdiction. Valley Water is the CEQA Lead Agency for the Project and is, therefore, responsible for determining whether GHG emissions with the Project would have a cumulatively considerable contribution to climate change.

Valley Water has not formally adopted GHG emission significance thresholds. CEQA allows lead agencies to identify thresholds of significance applicable to a project that are supported by substantial evidence. Substantial evidence is defined in the CEQA statute to mean "facts, reasonable assumptions predicated on facts, and expert opinion supported by facts" (14 CCR 15384(b)).[5] Substantial evidence can be in the form of technical studies, agency staff reports or

[5] 14 CCR 15384 provides the following discussion: "Substantial evidence" as used in the Guidelines is the same as the standard of review used by courts in reviewing agency decisions. Some cases suggest that a higher standard, the so called "fair argument standard" applies when a court is reviewing an agency's decision whether or not to

opinions, expert opinions supported by facts, and prior CEQA assessments and planning documents.

This analysis relies on the following significance thresholds adopted by BAAQMD and Sacramento Metropolitan Air Quality Management District (SMAQMD) to determine if the Project's GHG emissions would be cumulatively considerable:

- 1,100 metric tons of CO2e per year for construction emissions (SMAQMD, 2020).
- 10,000 metric tons of CO_2e per year for stationary source emissions (BAAQMD, 2022).
- 10,000 metric tons of CO_2e per year for operational emissions (SMAQMD, 2020).

Substantial evidence for use of a significance threshold of 1,100 metric tons of CO_2e per year for construction activities (construction equipment, material hauling, and construction worker trips) and a significance threshold of 10,000 metric tons of CO_2e per year for operations is provided in SMAQMD's *Greenhouse Gas Emission Thresholds for Sacramento County* (SMAQMD, 2020). SMAQMD utilized guidance from the California Air Pollution Control Officers Association (CAPCOA) to develop thresholds that ensure 90 percent of emissions from proposed projects are reviewed to assess the need for mitigation measures. According to guidance from CAPCOA, reviewing 90 percent of emissions is sufficient to meet AB 32 goals.

BAAQMD adopted a significance threshold of 10,000 metric tons of CO_2e per year for stationary sources of GHG emissions. The BAAQMD also used CAPCOA's guidance of reviewing 90 percent of emissions from proposed projects to set their stationary source threshold at 10,000 metric tons of CO_2e per year. Substantial evidence for using a threshold of 10,000 metric tons of CO_2e per year for stationary sources is provided in BAAQMD's *2022 CEQA Air Quality Guidelines*, *Appendix A: Threshold of Significance Justification* (BAAQMD, 2022).

Discussion

The Project would increase the pumping capacity of the VPS due to the replacement of the two existing 200-hp pumps and two 400-hp pumps with four 600-hp pumps. To evaluate the Project-related increase in GHG emissions from electrical power demand, the electrical power demand associated with operation of the existing pumps and the electrical power demand associated with operation of the new pumps was calculated.

To calculate the baseline electrical power demand associated with the existing pumps, total electrical power use between 2013 and 2022 (see **Table 16**) for the VPS as a whole was averaged and then adjusted to represent only the electrical power consumed by the existing pumps. From 2013 through 2022, the existing pumps ran for a total of 3,744 hours over 156 days (an average of 374.4 hours per year). The 2013 to 2022 data indicates that the average hourly and average annual electrical power demand for the existing pumps is 462 kWh and 172,855 kWh, respectively.

For the future with-Project scenario, three of the four new pumps (1,800 hp of the 2,400 hp) were assumed to operate at full load for 24 hours a day three months per year (2,160 hours per year). The estimated average hourly electrical power demand was estimated to be 1,342 kWh. The future with-Project scenario would result in an average annual electricity demand of 2,898,720 kWh, or a Project-related increase in annual electricity demand of 2,725,865 kWh.

prepare an EIR. Public Resources Code section 21082.2 was amended in 1993 (Chapter 1131) to provide that substantial evidence shall include "facts, reasonable assumptions predicated upon facts, and expert opinion supported by facts." The statute further provides that "argument, speculation, unsubstantiated opinion or narrative, evidence which is clearly inaccurate or erroneous, or evidence of social or economic impacts which do not contribute to, or are not caused by, physical impacts on the environment, is not substantial evidence."

The future with-Project scenario assumes three pumps operating at full load and does not account for the state-of-the-art equipment and new pumps equipped with variable frequency drives that would improve energy efficiency, which would cause the anticipated increase in energy use (and GHG emissions) to be lower than reported.

The existing natural gas standby generator is 50 kW (67 hp) is to be replaced with a 100 kW (134 hp) natural gas standby generator that would provide limited backup power for logistical controls and communications equipment in the event of power outages. A new 1,250 kW (1,676 hp) diesel standby generator would provide backup power for the new pumps and other critical equipment in the event of power interruptions. The natural gas and diesel standby generators would be tested monthly for two hours, for a total of 24 hours per year. It was assumed that the standby generators would be operated for 76 hours a year during power outages (thus, a total of 100 hours per year per generator).

(a) Less than Significant Impact. Construction of the Project would generate GHG emissions from the combustion of fossil fuels associated with construction equipment, material hauling, and construction worker trips. Construction-related emissions were estimated using the CalEEMod (California Emissions Estimator Model Version 2022.1.1.28). Although construction would most likely be broken down into three 6-month phases, for a total of 18 months of construction, to be consistent with the assumptions used in Section III, Air Quality, the GHG emissions modeling is based on the conservative assumption that Project construction would occur in one phase over 18 consecutive months. The Project's estimated total construction GHG emissions are 218 metric tons of CO_2e (i.e., 150 metric tons of CO_2e in year 1 and 68 metric tons of CO_2e in year 2). As previously stated, BAAQMD recommends CEQA Lead Agencies estimate and disclose the construction-related GHG emissions of proposed projects but has not adopted numerical significance thresholds for construction-related emissions. Since BAAQMD has not adopted numerical thresholds for construction-related emissions, the Project's construction-related GHG emissions were compared to SMAQMD 's numerical significance threshold for the construction phase of all project types of 1,100 metric tons of CO_2e per year. As the Project's estimated construction-related GHG emissions in both year 1 and year 2 are below the 1,100-metric-ton-per-year threshold, the Project's construction-related GHG emissions would not be considered cumulatively considerable.

The evaluation of the Project's operational GHG emissions considers direct emissions from the Project's stationary sources as well as GHG emissions from electricity demand using numerical significance thresholds adopted by BAAQMD and SMAQMD. In both cases, the Project's estimated emissions would be below the thresholds. **Table 17** displays the estimated GHG emissions increases associated with Project operations.

As previously explained, the Project is considered a stationary source due to permits needed from BAAQMD to install and operate the natural gas and diesel standby generators. As shown in **Table 17**, the Project would result in an estimated increase in direct GHG emissions of 66 metric tons of CO_2e per year from operation of the two standby generators, which is well below the BAAQMD's significance threshold of 10,000 metric tons of CO_2e per year for stationary sources.

To account for GHG emissions from electricity usage, consistent with SMAQMD's methodology for evaluating operational emissions, the sum of the Project's direct annual operational emissions from stationary sources (66 metric tons of CO_2e per year) and the Project's operational emissions associated with the electricity needed to operate the new pumps (255 metric tons CO_2e per year) was compared to the SMAQMD's operational significance threshold of 10,000 metric tons of CO_2e per year. The sum of these Project emissions is 321 metric tons CO_2e per year, well below the 10,000-metric-ton-of-CO_2e-per-year threshold. Thus, the Project's operational GHG emissions would not be considered cumulatively considerable.

Therefore, the Project's impact related to direct and indirect GHG emissions would be less than significant. No mitigation is necessary.

Table 17: Project-Related Annual Operational Greenhouse Gas Emissions in 2025

Category	Project-Related Increase (metric tons of CO_2e per year)
Stationary Sources	66
Electricity Usage	255
Total Emissions	**321**
SMAQMD Threshold for Operations	10,000
Exceeds Threshold?	**No**

SOURCE: *Vasona Pump Station Upgrade Air Quality Technical Report* (RCH Group, 2024)

For informational purposes, CalEEMod incorporates GHG emission factors for Pacific Gas & Electric (PG&E). CalEEMod uses an intensity rate of 203 pounds of CO_2 per megawatt of electricity produced for PG&E. Notably, as of 2021, PG&E had decreased its carbon intensity to 98 pounds of CO_2 per megawatt of electricity produced (PG&E, 2021). By 2030, the intensity rates of approximately 82 pounds of CO_2 per megawatt of electricity produced for PG&E are based on Renewable Portfolio Standard (RPS) mandates. A renewable portfolio standard is a regulatory mandate to increase production of energy from renewable sources such as wind, solar, biomass and other alternatives to fossil and nuclear electric generation. The electricity delivered by PG&E and consumed by the Project would be subject to SB 100 and the state's RPS, which requires increasing renewable energy to 60 percent by 2030 and 100 percent by 2045.

Therefore, by 2030, Project operations would emit 168 metric tons of CO_2e and by 2045, Project operations would emit 66 metric tons of CO_2e as a result of lower intensity rates for electrical usage while still accounting for the generator fuel usage.

(b) Less than Significant Impact. Valley Water's 2021 CCAP is a district-wide plan to reduce GHG emissions that is not applicable to individual projects.

The 2022 Scoping Plan is implemented at the State level, and compliance at a specific plan or project level is not addressed in the Plan. The Project would use vehicles and equipment that would meet current standards at the time of construction and operation and would not conflict with the statewide programs designed to address GHG emissions reduction goals. The Project would not conflict with any applicable plan, policy, or regulation of an agency adopted for the purpose of reducing GHG emissions. The impact would be less than significant.

Mitigation Measures

No mitigation measures needed.

IX. Hazards and Hazardous Materials

Would the Project:	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
a. Create a significant hazard to the public or the environment through the routine transport, use, storage or disposal of hazardous materials?			X	
b. Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?		X		
c. Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within ¼ mile of an existing or proposed school?				X
d. Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?				X
e. For a project located within an airport land use plan or, where such 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?				X
f. Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?			X	
g. Expose people or structures to a significant risk of loss, injury or death involving wildland fires?			X	

Regulatory Framework

Hazardous materials and hazardous wastes are subject to extensive federal, state, and local regulations to protect public health and the environment. These regulations provide definitions of hazardous materials; establish reporting requirements; set guidelines for handling, storage, transport, and disposal of hazardous substances; and require health and safety provisions for workers and the public.

Resource Conservation and Recovery Act and Hazardous Waste Control Law

The Resource Conservation and Recovery Act (RCRA) of 1976 (42 USC Section 6901 et seq.), as amended by the Hazardous and Solid Waste Amendments of 1984, is the primary federal law for the regulation of solid waste and hazardous waste in the United States. These laws provide for the “cradle-to-grave” regulation of hazardous wastes, including generation, transportation, treatment, storage, and disposal. Any business, institution, or other entity that generates hazardous waste is required to identify and track its hazardous waste from the point of generation until it is recycled, reused, or disposed of.

USEPA has primary responsibility for implementing RCRA, but individual states can seek authorization to implement some or all RCRA provisions. California received authority to implement the RCRA program in 1992. DTSC is responsible for implementing the RCRA program in addition to California's own hazardous waste laws, which are collectively known as the Hazardous Waste Control Law.

The Unified Program

The Unified Program consolidates the administrative requirements, permits, inspections, and enforcement activities of the following environmental and emergency management programs:

- Aboveground Petroleum Storage Act (APSA) Program
- California Accidental Release Prevention (CalARP) Program
- Hazardous Materials Business Plan (HMBP) Program
- Hazardous Waste Generator Program
- Onsite Hazardous Waste Treatment Programs
- Underground Storage Tank Program

Santa Clara County has four CUPAs (Certified Unified Program Agencies) and four Participating Agencies that administer these programs within their respective jurisdictions.

Aboveground Petroleum Storage Act Program

APSA protects public health and the environment from potential contamination or adverse impact from aboveground storage petroleum-based hazardous materials and wastes. APSA regulates facilities with aggregate aboveground petroleum storage capabilities of 1,320 gallons or more. In Santa Clara County, the APSA program is implemented by the Santa Clara County Hazardous Materials Compliance Division. Facilities with 1,320 gallons or more, but less than 10,000 gallons, must report to the County and pay required fees. Since the Project would install a 6,000-gallon aboveground diesel fuel tank adjacent to the new 1,250kW standby diesel generator, the Project is subject to fee and reporting requirements of the APSA Program.

Hazardous Materials Business Plan Program

The Santa Clara County Fire Department is the Participating Agency responsible for implementing the HMBP program in the Town of Los Gatos, including the VPS. Storage of hazardous materials at or above State-defined thresholds makes a facility subject to the HMBP program. The general thresholds are 55 gallons of a liquid, 200 cubic feet of a gas, and 500 pounds of a solid. The new 6,000-gallon aboveground diesel fuel tank would make the VPS subject to the HMBP program requirements.

Hazardous Waste Classification Criteria

In accordance with the California Code of Regulations (CCR), Title 22, Division 4.5, Chapter 11, Article 3, excavated soil would be classified as a hazardous waste if it exhibits the characteristics of ignitability, corrosivity, reactivity, or toxicity. A waste is considered toxic in accordance with 22 CCR 66261.24 if it contains:

- Total concentrations of certain substances at concentrations greater than the state total threshold limit concentration (TTLC);
- Soluble concentrations greater than the state soluble threshold limit concentration (STLC);
- Soluble concentrations of certain substances greater than federal toxicity regulatory levels using a test method called the toxicity characteristic leaching procedure (TCLP); or

- Specified carcinogenic substances at a single or combined concentration of 0.001 percent.

In accordance with California regulations (14 CCR Chapter 3.5, Article 1), materials containing greater than 1 percent friable asbestos would be considered a hazardous waste and require appropriate disposal. *Friable* is defined as easily crumbled or reduced to powder by hand pressure. However, in many cases, asbestos in building materials is tightly bound and not friable. In this case, or if the asbestos content were less than 1 percent, the materials to be disposed of would not be considered a hazardous waste and would not be subject to disposal restrictions.

Hazardous Waste Disposal

California landfills are segregated based on regulatory authority as Class I, Class II, or Class III facilities. Class I facilities can accept hazardous wastes with chemical levels below the Federal land disposal restriction (land ban) treatment standards. Class II and III facilities can accept nonhazardous wastes that meet State acceptance criteria for organic and inorganic compounds.

Discussion

(a) Less Than Significant Impact. Existing VPS operations and maintenance activities involve the routine use, storage, and generation of hazardous materials, including diesel fuel, natural gas, lubricants, solvents, and process gas in accordance with applicable regulatory requirements. The Department of Toxic Substances Control (DTSC) Envirostor and State Water Resources Control Board (SWRCB) GeoTracker databases were reviewed to identify any reported contamination or hazardous materials releases within 1,000 feet of the Project Site and the Off-site Staging Area. The environmental database review did not reveal any prior releases resulting in soil or groundwater contamination within the 1,000-foot search radius, nor any record of violation related to the improper use, storage, or disposal of hazardous materials at the VPS or Off-site Staging Area.

The Proposed Project includes the installation of a new 6,000-gallon aboveground diesel storage tank with double containment and a diesel-powered backup generator in a new enclosure next to the Pump Building. The 6,000-gallon aboveground diesel storage tank would be designed to comply with all Uniform Fire Code requirements, including distance from potential receptors and use of status-producing equipment in the new enclosure, as applicable. The aboveground diesel storage tank would also subject to the HMBP and ASPA programs. To comply with the HMBP program, Valley Water would be required to submit facility information, a hazardous materials inventory, and emergency response and training plans and pay an annual fee to the Santa Clara County Fire Department. Under the APSA program, the Project would be subject to the fee and reporting requirements of the Santa Clara County Hazardous Materials Compliance Division. Mandatory compliance with these requirements and programs would ensure Project impacts related to the routine transport, use, or disposal of hazardous materials are less than significant. No mitigation is necessary.

(b) Less Than Significant Impact with Mitigation Incorporated. Project implementation could result in an accidental release of hazardous materials if contaminated soil were encountered during construction, if hazardous substances or building materials were accidentally released into the environment during construction activities, or if hazardous materials were accidentally released to soil or groundwater during Project operations and maintenance. In the absence of proper controls, a hazardous materials release would create a significant hazard to the public and the environment.

Accidental Release from Contaminated Soil During Construction

Construction activities would include soil disturbance and minor excavations for the installation of the proposed facility upgrades and improvements by Valley Water's construction contractors, and removal of the existing electrical transformer and concrete pad by PG&E. In all, an estimated 254 cubic yards of spoils requiring offsite disposal would be generated during construction, some of which could potentially contain hazardous materials.

As stated above under item (a), review of environmental databases maintained by DTSC and SWRCB did not reveal any prior documented releases resulting in soil or groundwater contamination within 1,000 feet of the Project Site or Off-site Staging Area, nor any record of violation related to the improper use, storage, or disposal of hazardous materials at the VPS. As a result, the potential to encounter contaminated soil exceeding Environmental Screening Levels established by USEPA and the San Francisco Bay Regional Water Quality Control Board (SF Bay RWQCB), or excavated soil that would be classified as hazardous waste per Title 22 of the California Code of Regulations, is low. Further, the following Valley Water standard BMPs and VHP Aquatic AMMs would be implemented: **BMP WQ-4 (Limit Impacts from Staging and Stockpiling Materials), BMP HM-9 (Ensure Proper Hazardous Materials Management), and Aquatic AMM 26.** These BMPs and Aquatic AMM, which require the proper stockpiling of excavated spoils, and include measures that would be implemented if toxic substances are encountered during construction, would ensure the potential impact related to the inadvertent release of hazardous substances from contaminated soil encountered during construction is less than significant. In addition, although no mitigation is needed for this impact, implementation of **Mitigation Measure MM HAZ-1 (Site-Specific Safety and Health Plan)**, which requires that Valley Water's construction contractor prepare a plan identifying the soil-handling methods that would be used to ensure excavated soils are removed, transported, and disposed of in a safe and lawful manner, would further reduce the potential for adverse effects.

Accidental Release of Hazardous Building Materials During Construction

The VPS was constructed in 1975 when lead-based paints and primers, asbestos-containing building materials, and fluorescent lights and ballasts containing mercury vapors or di (2 ethylhexyl) phthalate (DEHP) were commonly used in construction. The structures, pipelines, vaults, and other infrastructure that would be demolished, removed, or could otherwise be disturbed during Project construction by Valley Water's construction contractor have not been surveyed for hazardous building materials. In the absence of proper controls, the potential for an accidental release of hazardous building materials is considered a potentially significant impact. However, implementation of **Mitigation Measures MM HAZ-1 (Site-Specific Safety and Health Plan) and MM-HAZ-2 (Waste Management and Materials Disposal Plan)** would reduce the impact to a less-than-significant level. Mitigation Measure **MM HAZ-1 (Site-Specific Safety and Health Plans)** requires preparation of a Site-Specific Safety and Health Plan that identifies the hazardous substances and hazardous building materials that could be encountered during construction and specifies the methods that would be used and the measures that would be implemented to protect workers and public health and safety from accidental releases of such substances and materials to the environment. **Mitigation Measure MM HAZ-2 (Waste Management and Materials Disposal Plan)** requires preparation of a Waste Management and Materials Disposal Plan specifying how the contractor will remove, transport, and dispose of construction debris, including debris that may containing hazardous building materials and excavated soils, in a safe and lawful manner.

Accidental Release of Hazardous Substances During Transformer Removal

As part of the Project, PG&E would replace and upgrade the existing electrical transformer, service entrance, and electrical switchgear that serve the VPS. The manufacture date of the existing electrical transformer that would be removed by PG&E is unknown but, if installed in

1975 when the Project Site was developed, the transformer may contain polychlorinated biphenyls (PCBs). (The U.S. EPA began regulating the manufacture of PCBs in 1976.) PG&E would remove, replace, and upgrade these facilities consistent with applicable PG&E procedures, standards, and requirements for the removal, construction, and installation of gas and electrical services and equipment contained in the PG&E *Electric and Gas Service Requirements 2022-2023* (e.g., *Greenbook*) (PG&E, 2022). It is assumed PG&E would comply with applicable federal, state, and local laws and requirements and ensure hazardous materials are not accidentally released during transformer removal. The potential impact related to the accidental release of PCBs during transformer removal is considered less than significant. No mitigation is required.

<u>Accidental Releases of Hazardous Materials Commonly Used at Construction Sites</u>

Project construction would involve the use of diesel fuel, lubricants, solvents, paints, glues, and other hazardous materials at the Project Site. An inadvertent release of large quantities of these materials into the environment could adversely affect soil, downstream water bodies, and groundwater quality. Valley Water's construction contractor would take appropriate measures to prevent releases and spills, including implementation of the following Valley Water standard BMPs: **BMP WQ-4 (Limit Impacts from Staging and Stockpiling Materials), BMP WQ-6 (Limit Impact of Concrete Near Waterways), BMP HM-7 (Restrict Vehicle and Equipment Cleaning to Appropriate Locations), BMP HM-8 (Ensure Proper Vehicle and Equipment Fueling and Maintenance), BMP HM-9 (Ensure Proper Hazardous Materials Management.), and BMP HM-10 (Utilize Spill Prevention Measures).** The contractor would also comply with **Aquatic AMMs 7, 8, 11, and 12.** Implementation of these BMPs and Aquatic AMMs, which include various best practices and prevention and response measures, would ensure the potential impact related to accidental releases of hazardous substances commonly used at construction sites is less than significant. No mitigation is required.

<u>Accidental Releases of Hazardous Materials During Future Operations and Maintenance</u>

The only change in the hazardous materials used during current operations and maintenance vs. future operations and maintenance is diesel fuel. The new 6,000-gallon aboveground diesel storage tank would be used to fuel the new standby diesel-powered generator during monthly generator testing and during power outages and emergencies. The impact related to accidental releases of diesel fuel during future operations and maintenance would be less than significant because the Project would comply with all relevant Uniform Fire Code, APSA, and HMBP requirements. No mitigation is required.

(c) No Impact. The Project Site is located approximately 2,500 feet (0.57-mile) southeast of Village Elementary School and approximately 5,000 feet (0.94-mile) southwest of Farnham Elementary School. Since there are no existing or proposed schools within ¼ mile of the Project Site, this criterion does not apply to the Project and no impact related to hazardous emissions or the handling of hazardous substances within ¼ mile of an existing or proposed school would result.

(d) No Impact. A review of the environmental databases maintained by DTSC and SWRCB was conducted and confirmed the VPS is not on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 (e.g., the Cortese List). No impact would result.

(e) No Impact. The VPS is approximately 6.75 miles from the nearest airport, the San Jose Mineta International Airport, which is located at 1701 Airport Boulevard, San Jose, CA 95110. At this distance impacts related to safety hazards or excessive noise from an airport would not occur. No impact would result.

(f) Less Than Significant Impact. The Town of Los Gatos does not have an adopted emergency response plan or emergency evacuation plan that encompasses the Project Site or Off-site Staging Area. Implementation of the Project could interfere with emergency response services or an emergency evacuation plan if construction activities included the complete or partial closure of roadways or otherwise restricted access for emergency response vehicles, or restricted access to critical facilities such as hospitals or fire stations. Project construction activities would not require partial or complete closure of any roads or travel lanes, nor otherwise restrict access for emergency response vehicles. Further, there are no emergency response facilities (hospitals, fire departments, or police stations) near the Project Site and Project construction would have no effect on vehicular access in the vicinities of such facilities. The impact related to impairing implementation of, or physical interference with, an adopted emergency response plan or emergency evacuation plan would be less than significant.

(g) Less Than Significant Impact. The Project Site is not within an area with a high wildland fire risk. Project construction would involve the use of flammable materials such as fuels. Valley Water's construction contractor would implement **BMP HM-12 (Incorporate Fire Prevention Measures)** that would prevent significant wildfire risks during Project construction. Mandatory compliance with the Uniform Fire Code, APSA, and the HMBP program would prevent significant wildfire risks from the increased use of diesel fuel for backup generator testing and operations. The impact related to exposing people or structures to a significant risk of wildfires would be less than significant. No mitigation is required.

Best Management Practices

BMP WQ-4: Limit Impacts from Staging and Stockpiling Materials.

1. To protect on-site vegetation and water quality, staging areas should occur on access roads, surface streets, or other disturbed areas that are already compacted and only support ruderal vegetation. Similarly, all equipment and materials (e.g., road rock and project spoil) will be contained within the existing service roads, paved roads, or other pre-determined staging areas.

2. Building materials and other project-related materials, including chemicals and sediment, will not be stockpiled or stored where they could spill into water bodies or storm drains.

3. No runoff from the staging areas may be allowed to enter water ways, including the creek channel or storm drains, without being subjected to adequate filtration (e.g., vegetated buffer, swale, hay wattles or bales, silt screens).

4. The discharge of decant water to water ways from any on-site temporary sediment stockpile or storage areas is prohibited.

5. During the wet season, no stockpiled soils will remain exposed, unless surrounded by properly installed and maintained silt fencing or other means of erosion control. During the dry season, exposed, dry stockpiles will be watered, enclosed, covered, or sprayed with non-toxic soil stabilizers.

BMP 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.

BMP 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.

BMP 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.

BMP 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.

BMP HM-10: Utilize Spill Prevention Measures.

Prevent the accidental release of chemicals, fuels, lubricants, and non-storm drainage water following these measures:

1. Field personnel will be appropriately trained in spill prevention, hazardous material control, and cleanup of accidental spills;

2. Equipment and materials for cleanup of spills will be available on site, and spills and leaks will be cleaned up immediately and disposed of according to applicable regulatory requirements;

3. Field personnel will ensure that hazardous materials are properly handled and natural resources are protected by all reasonable means;

4. Spill prevention kits will always be in close proximity when using hazardous materials (e.g., at crew trucks and other logical locations), and all field personnel will be advised of these locations; and

5. The work site will be routinely inspected to verify that spill prevention and response measures are properly implemented and maintained.

BMP 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), or when a work area is designated a “Very High Fire Hazard Severity Zone” by Cal Fire, work crews will have appropriate fire suppression equipment available at the work site.

3. An extinguisher shall be available at all times during welding or other repair activities that can generate sparks (such as metal grinding).

4. Smoking shall be prohibited except in designated staging areas and at least 20 feet from any combustible chemicals or vegetation.

Aquatic AMMs

AMM 7: Personnel shall prevent the accidental release of chemicals, fuels, lubricants, and non-storm drainage water into channels.

AMM 8: Spill prevention kits shall always be in close proximity when using hazardous materials (e.g., crew trucks and other logical locations).

AMM 11: Vehicles shall be washed only at approved areas. No washing of vehicles shall occur at job sites.

AMM 12: No equipment servicing shall be done in the stream channel or immediate flood plain, unless equipment stationed in these locations cannot be readily relocated (i.e., pumps, generators).

AMM 26: Any sediment removed from a project site shall be stored and transported in a manner that minimizes water quality impacts.

Mitigation Measures

Mitigation Measure MM HAZ-1: Site-Specific Safety and Health Plan.

Valley Water shall require its construction contractor to develop, implement, and verify compliance of a Site-Specific Safety and Health Plan for the Project. The construction contractor shall submit the Plan to Valley Water's Environmental Health and Safety Unit for review and approval at least 60 days prior to the start of construction. The Plan shall conform to all local, state, and federal ordinances, rules, regulations, and guidelines concerning hazardous materials management (including measures to be implemented in the event hazardous materials are encountered during construction, and other hazardous materials handling, testing, transport, and disposal protocols relevant to the project), occupational health and safety (including procedures for the protection of the Contractor’s personnel, subcontractors, consultants, inspectors, supplier personnel, and Valley Water staff), and public health and safety. The Plan shall be prepared and signed by a Certified Industrial Hygienist and identify the site safety and health supervisor responsible for implementation of the Plan. Should the hazards associated with the site change during the course of the Project, the Certified Industrial Hygienist shall amend the appropriate sections of the Plan to reflect the changed conditions. The construction contractor shall keep a copy of the Plan at the job site at all times and provide a copy to all people working at the site. The construction contractor is responsible for providing any and all training, monitoring, personal protective equipment, protective clothing, and/or devices specified in the Plan.

The Plan shall identify hazardous substances (including hazardous building materials such as lead-based paint, asbestos-containing materials, polychlorinated biphenyls, and fluorescent lights and ballasts containing mercury vapors or di [2 ethylhexyl] phthalate) that could be encountered during construction, potential health and safety hazards, abatement standards and methods, monitoring to be performed during construction, soil-handling methods to minimize the potential for exposure to harmful levels of any chemicals identified in excavated soils, protective equipment, and emergency response procedures (including procedures for the containment and cleanup of accidental releases of hazardous substances during Project construction). In the event of a reportable spill, Valley Water’s construction contractor shall notify applicable agencies in accordance with all pertinent laws and regulations. Noncompliance with the Plan shall be grounds for temporary suspension of all work at the VPS. Suspension of work shall not be grounds for additional time or compensation.

Mitigation Measure MM HAZ-2: Waste Management and Materials Disposal Plan.

Valley Water shall require its construction contractor to prepare and implement a Waste Management and Materials Disposal Plan specifying how the contractor will remove, store, transport, and dispose of all construction debris and excavated soil in a safe, appropriate, and lawful manner. Valley Water's construction contractor shall submit the plan to Valley Water's Environmental Health and Safety Unit for review and approval a minimum of 60 days prior to the start of construction activities. The Plan shall describe how construction debris and excavated materials will be disposed of and/or reused and identify the disposal or reuse site. Consistent with Santa Clara County's waste diversion goals and requirements, the Plan shall emphasize minimizing the amount of construction debris and excavated materials requiring off-site disposal or reuse, followed by recycling and reuse to reduce the amount of waste being disposed of in landfills. Valley Water's construction contractor shall retain all relevant documents, such as waste profiles and correspondence between the contractor and the disposal or reuse facility and provide the documents to Valley Water upon request.

X. Hydrology and Water Quality

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a. Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or groundwater quality?			X	
b. Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that the Project may impede sustainable groundwater management of the basin?				X
c. Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would: i.) Result in substantial erosion or siltation on- or off-site?			X	
ii.) Substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite?			X	
iii.) Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?			X	
iv.) Impede or redirect flood flows?				X
d. In flood hazard, tsunami, or seiche zones, risk release of pollutants due to Project inundation?				X
e. Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?				X

Regulatory Framework

Surface Water Quality

The Santa Clara Valley Urban Runoff Pollution Prevention Program (SCVURPPP) is an association of the thirteen cities and towns in Santa Clara Valley, the County of Santa Clara, and Valley Water that are regulated under the San Francisco Bay Region Municipal Regional Stormwater National Pollutant Discharge Elimination (NPDES) Permit (Order No. R2-2022-0018, NPDES Permit No. CAS612008) (Municipal Regional Permit) to discharge stormwater to South San Francisco Bay.

Discharges of stormwater and dry weather runoff to municipal separate storm sewer systems (MS4s), including runoff from construction sites, are covered under the Municipal Regional Permit and associated waste discharge requirements. As discussed in more detail below, the

Project would comply with the construction requirements of the Municipal Regional Permit through implementation of Valley Water Standard BMPs and VHP Aquatic AMMs.

To prevent an increase in post-construction stormwater runoff and pollutants, Provision C.3 of the Municipal Regional Permit establishes post-construction source control, site design, and treatment requirements for development and redevelopment projects that create and/or replace 10,000 square feet or more of impervious surfaces. The Project falls under the category of "Other Redevelopment Projects". As stated in **Section 2**, Project Description, the Project would create and replace a total of 5,175 square feet of impervious surfaces and would result in a net increase of 869 square feet of impervious surfaces. Because the project would create and replace less than the 10,000 square-foot threshold, the Project is not subject to the post-construction requirements.

Groundwater Management

Passed in 2014 by the California State legislature, the Sustainable Groundwater Management Act (SGMA) promotes local, sustainable management of groundwater supplies. For basins designated as medium and high priority by the State, SGMA requires local Groundwater Sustainability Agencies (GSAs) to develop and implement Groundwater Sustainability Plans (GSPs) or alternative groundwater management plans to achieve sustainability.

Valley Water is the exclusive GSA for the Santa Clara and Llagas Subbasins (the primary groundwater basins in Santa Clara County). For the North San Benito Subbasin, which is largely located in San Benito County, Valley Water and San Benito County Water District (SBCWD) are the GSAs. Valley Water's *2021 Groundwater Management* for *the Santa Clara and Llagas Subbasins* was adopted by the Valley Water Board of Directors in November 2021 (Valley Water, 2021a). The *North San Benito Subbasin GSP* was adopted by the SBCWD Board of Directors and Valley Water Board of Directors in November and December 2021, respectively (SBCWD and Valley Water, 2021).

Existing Conditions

The Project is in the Los Gatos Creek watershed (Hydrologic Unit Cataloging 12: USGS 2013). The Los Gatos Creek watershed area is 55 square miles. Los Gatos Creek runs 24 miles, from Loma Prieta Mountain in the Santa Cruz Mountains northward to its confluence with the Guadalupe River in downtown San Jose, ultimately draining to the southern San Francisco Bay. Los Gatos Creek flows through multiple impoundments, including Vasona and Lexington Reservoirs, upstream of the VPS.

The Project Site borders the Federal Emergency Management Agency's (FEMA) 100-year Flood Hazard Zone for Los Gatos Creek (Santa Clara County, 2018). The Project Site is approximately 170 feet south and east of the Los Gatos Creek. Los Gatos Creek flows perennially southwest to northeast along the westerly boundary of the VPS. On-site stormwater inlets are located along the northern and southern perimeters of the Pump Building and along the southern perimeter of the Storage Building. Runoff from the Project Site drains to on-site stormwater inlets and is conveyed to Los Gatos Creek, eventually discharging into the San Francisco Bay.

The creek discharge dissipation structure and manmade pond located adjacent to and outside of the VPS perimeter fencing and the Project Site would not be directly or indirectly affected by the Project. Valley Water uses the creek discharge dissipation structure to augment flow in Los Gatos Creek.

The VPS is underlain with approximately 58% Urban Land-Elder fine sandy loam soil and approximately 16% Urban land-Flaskan complex, a component that occurs on alluvial fans and derives from alluvium from the same rock types as the Elder soil. Both soil types are classified to have very low runoff potential.

Discussion

(a) Less Than Significant Impact. Project implementation could potentially affect water quality if the Project adversely affected the water quality of downstream receiving water bodies, such as Los Gatos Creek, as a result of increased soil erosion and sedimentation. During construction and installation of outdoor improvements and upgrades (as opposed to improvements and upgrades that would occur inside of existing structures), established groundcover and impervious surfaces would be disturbed or removed, making exposed soil more susceptible to erosion. Construction could also result in the accidental release of construction-related chemicals such as adhesives, solvents, paints, and petroleum products that, if not managed properly, could adhere to soil particles, become mobilized by rain or runoff, and degrade water quality.

Construction activities would comply with the Municipal Regional Permit and waste discharge requirements through implementation of Valley Water standard BMPs and VHP Aquatic AMMs that would protect water quality by maintaining a clean work site; minimizing the amount of vegetation that is removed; requiring erosion control measures such as silt fences, straw bale barriers, and soil stabilization; limiting vehicle and equipment cleaning, fueling, and maintenance to appropriate areas; and ensuring proper hazardous material management and ensuring personnel are training in spill prevention. BMPs that would be implemented during construction and would protect water quality include **BMP WQ 4 (Limit Impacts from Staging and Stockpiling Materials), BMP WQ-9 (Use Seeding for Erosion Control, Weed Suppression, and Site Improvement), BMP WQ-11 (Maintain Clean Conditions at Work Sites), BMP WQ-16 (Prevent Stormwater Pollution), BMP HM-7 (Restrict Vehicle and Equipment Cleaning to Appropriate Locations), BMP HM-8 (Ensure Proper Vehicle and Equipment Fueling and Maintenance), BMP HM-9 (Ensure Proper Hazardous Materials Management), and BMP HM-10 (Utilize Spill Prevention Measures).** Aquatic AMMs that would be implemented during construction and would protect water quality include **Aquatic AMMs 5, 7, 8, 11, 12, 34, 35, 36, 37, 38, 39, 42, 63, 65, 66, 67, 68, 69, 83, and 84.** With implementation of these BMPs and Aquatic AMMs, potential impacts to water quality during construction would be less than significant.

(b) No Impact. Implementation of the Project would not increase groundwater consumption or result in a substantial decrease in groundwater recharge. Project implementation would result in a net increase impervious surfaces at the VPS of 869 square feet from the enclosure for the diesel-powered generator, concrete walkways, and pads for the switchgear entrance and electrical transformer. This increase would not substantively change the rate at which water infiltrates into the ground because soil and gravel areas throughout the Project Site are compacted and any infiltration into the existing soil and gravel in these areas is minimal. Further, the Project would increase flow at raw water turnouts to Valley Water's groundwater recharge facilities, thereby contributing to increased groundwater recharge in the Santa Clara and Llagas Subbasins. Thus, no impact to groundwater supplies and groundwater recharge would result.

(c.i) Less Than Significant Impact. Implementation of the Project would involve minor earthwork and grading, which could temporarily affect drainage patterns during construction. Implementation of **BMP WQ-9 (Use Seeding for Erosion Control, Weed Suppression, and Site Improvement), BMP WQ-16 (Prevent Stormwater Pollution), and Aquatic AMMs 4, 29, and 31** would prevent substantial erosion or sedimentation from temporary changes in drainage patterns during construction by minimizing the amount of vegetation that is removed and requiring erosion control measures such as silt fences, straw bale barriers, and soil stabilization.

With implementation of these BMPs and Aquatic AMMs, the soil erosion and sedimentation impacts resulting from temporary changes in drainage patterns would be less than significant.

New permanent structures such as the concrete pads for the switchgear entrance (25 feet by 15.5 feet) and electrical transformer (8 feet by 8 feet), and the enclosure for the diesel-powered generator (34 feet by 20 feet) would result in minor changes to drainage patterns and runoff at the Project Site. However, due to the small size of these structures, any permanent changes in drainage patterns would be minimal and would not substantially increase soil erosion. Thus, the permanent impact would be less than significant.

(c.ii) Less Than Significant Impact. The Project would increase impervious surfaces at the Project Site by 869 square feet as a result of the installation of concrete pads for the switchgear entrance (25 feet by 15.5 feet) and electrical transformer (8 feet by 8 feet), and the enclosure for the diesel-powered generator (34 feet by 20 feet). Over half of the new impervious surfaces would be installed in a dirt and gravel area with compacted ground with minimal infiltration. Thus, the net increase in impervious surfaces would not substantially increase the rate or amount of surface runoff from the site nor result in onsite or offsite flooding. The impact related to onsite and offsite flooding would to be less than significant.

(c.iii) Less Than Significant Impact. As stated above, Project implementation would result in 869 square feet of additional impervious surfaces, over half of which would be installed in an area that is currently compacted dirt and gravel. This increase in impervious surfaces would not substantially increase the rate or amount of runoff from the site to Los Gatos Creek nor exceed the capacity of the stormwater drainage system.

As discussed in the Regulatory Framework, above, Provision C.3 of the Municipal Regional Permit establishes post-construction source control, site design, and treatment requirements for development and redevelopment projects that create and/or replace 10,000 square feet or more of impervious surfaces. The Project would create and/or replace a total of 5,175 square feet of impervious surfaces and would result in a net increase of 869 square feet of impervious surfaces. Because the project would create and replace less than the 10,000 square-foot threshold, the Project the post-construction requirements of the Municipal Regional Permit do not apply.

See the discussion under item (a), above, for information regarding the potential for increased pollutants in site runoff during construction and the BMPs and Aquatic AMMs that would prevent these temporary construction-related pollutants from having a significant adverse effect on water quality in receiving waterbodies. Upon completion of construction, the site would be operated and maintained similar to existing conditions and is not expected to add new sources of pollutants in site runoff. The new diesel backup generator and diesel storage tank would be installed in a new enclosure with double containment to capture any spilled fuel and prevent inadvertent releases into the environment. Valley Water would be required to comply with fee and reporting requirements of the Santa Clara County Hazardous Materials Compliance Division—the Certified Unified Program Agency—for the new aboveground diesel fuel tank, consistent with the Aboveground Petroleum Storage Act (APSA). The impact related to generating runoff that would exceed the capacity of stormwater infrastructure or introduce new sources of pollutants in runoff is less than significant.

(c.iv) No Impact. The Project Site is not within a FEMA 100-year Flood Hazard Zone and is not subject to flooding. The Project does not involve the placement of structures in an area that would impede or redirect flood flows. No impact would result.

(d) No Impact. The Project Site is not subject to tsunamis or seiches and is not in a FEMA 100-Year Flood Hazard Zone nor subject to flooding. The aboveground diesel fuel tank would be installed in the same enclosure as the diesel backup generator and equipped with double containment. Thus, no impact related to the release of pollutants in the event of inundation would occur.

(e) No Impact. The Project would not conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan. As discussed under item (a), above, BMPs and Aquatic AMMs would be implemented during construction to protect water quality in receiving water bodies such as Los Gatos Creek. The Project would also not conflict with or obstruct implementation of Valley Water's *2021 Groundwater Management Plan for the Santa Clara and Llagas Subbasins*. Rather, the Project would increase groundwater recharge by increasing flow at raw water turnouts to Valley Water's groundwater recharge facilities. Thus, no impact related to conflict or obstruction with water quality control plans or sustainable groundwater management plans would result.

Best Management Practices

BMP WQ-4: Limit Impacts from Staging and Stockpiling Materials.

1. To protect on-site vegetation and water quality, staging areas should occur on access roads, surface streets, or other disturbed areas that are already compacted and only support ruderal vegetation. Similarly, all equipment and materials (e.g., road rock and Project spoil) will be contained within the existing service roads, paved roads, or other pre-determined staging areas.

2. Building materials and other Project-related materials, including chemicals and sediment, will not be stockpiled or stored where they could spill into water bodies or storm drains.

3. No runoff from the staging areas may be allowed to enter water ways, including the creek channel or storm drains, without being subjected to adequate filtration (e.g., vegetated buffer, swale, hay wattles or bales, silt screens).

4. The discharge of decant water to water ways from any on-site temporary sediment stockpile or storage areas is prohibited.

5. During the wet season, no stockpiled soils will remain exposed, unless surrounded by properly installed and maintained silt fencing or other means of erosion control. During the dry season, exposed, dry stockpiles will be watered, enclosed, covered, or sprayed with non-toxic soil stabilizers.

BMP WQ-9: Use Seeding for Erosion Control, Weed Suppression, and Site Improvement.

Disturbed areas shall be seeded 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.

BMP WQ-11: Maintain Clean Conditions at Work Sites.

The work site, areas adjacent to the work site, and access roads will be maintained in an orderly condition, free and clear from debris and discarded materials on a daily basis. Debris may include unused or discarded construction materials, lunch wrappers, cigarette butts, etc. Personnel will not sweep, grade, or flush surplus materials, rubbish, debris, or dust into storm drains or waterways.

For activities that last more than one day, materials or equipment left on the site overnight will be stored as inconspicuously as possible and will be neatly arranged. Any materials and equipment left on the site overnight will be stored to avoid erosion, leaks, or other potential impacts to water quality.

Upon completion of work, all building materials, debris, unused materials, concrete forms, and other construction-related materials will be removed from the work site. Prevent litter from escaping by covering loads that are being transported to and from site.

BMP 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 will 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, including all products containing plastic or monofilament materials, 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.

BMP 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.

BMP 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.

BMP 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.

BMP HM-10: Utilize Spill Prevention Measures.

Prevent the accidental release of chemicals, fuels, lubricants, and non-storm drainage water following these measures:

1. Field personnel will be appropriately trained in spill prevention, hazardous material control, and cleanup of accidental spills;

2. Equipment and materials for cleanup of spills will be available on site, and spills and leaks will be cleaned up immediately and disposed of according to applicable regulatory requirements;

3. Field personnel will ensure that hazardous materials are properly handled, and natural resources are protected by all reasonable means;

4. Spill prevention kits will always be in close proximity when using hazardous materials (e.g., at crew trucks and other logical locations), and all field personnel will be advised of these locations; and

5. The work site will be routinely inspected to verify that spill prevention and response measures are properly implemented and maintained.

Aquatic AMMs

AMM 2: Reduce stream pollution by removing pollutants from surface runoff before the polluted surface runoff reaches local streams.

AMM 3: Maintain the current hydrograph and, to the extent possible, restore the hydrograph to more closely resemble predevelopment conditions.

AMM 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.

AMM 7: Personnel shall prevent the accidental release of chemicals, fuels, lubricants, and non-storm drainage water into channels.

AMM 8: Spill prevention kits shall always be in close proximity when using hazardous materials (e.g., crew trucks and other logical locations).

AMM 11: Vehicles shall be washed only at approved areas. No washing of vehicles shall occur at job sites.

AMM 12: No equipment servicing shall be done in the stream channel or immediate flood plain, unless equipment stationed in these locations cannot be readily relocated (i.e., pumps, generators).

AMM 29: Existing native vegetation shall be retained by removing only as much vegetation as necessary to accommodate the trail clearing width. Maintenance roads should be used to avoid effects on riparian corridors.

AMM 31: When conducting vegetation management, retain as much understory brush and as many trees as feasible, emphasizing shade producing and bank stabilizing vegetation. If riparian vegetation is to be removed with chainsaws, consider using saws currently available that operate with vegetable-based bar oil.

AMM 34: Use the minimum amount of impermeable surface (building footprint, paved driveway, etc.) as practicable.

AMM 35: Use pervious materials, such as gravel or turf pavers, in place of asphalt or concrete to the extent practicable.

AMM 36: Use flow control structures such as swales, retention/detention areas, and/or cisterns to maintain the existing (pre-project) peak runoff.

AMM 37: Direct downspouts to swales or gardens instead of storm drain inlets.

AMM 38: Use flow dissipaters at runoff inlets (e.g., culvert drop-inlets) to reduce the possibility of channel scour at the point of flow entry.

AMM 39: Minimize alterations to existing contours and slopes, including grading the minimum area necessary.

AMM 40: Maintain native shrubs, trees and groundcover whenever possible and revegetate disturbed areas with local native or non-invasive plants.

AMM 42: Use flow control structures, permeable pavement, cisterns, and other runoff management methods to ensure no change in post-construction peak runoff volume from pre-project conditions for all covered activities with more than 5,000 square feet of impervious surface.

AMM 63: Prepare and implement sediment erosion control plans.

AMM 65: Control exposed soil by stabilizing slopes (e.g., with erosion control blankets) and protecting channels (e.g., using silt fences or straw wattles).

AMM 66: Control sediment runoff using sandbag barriers or straw wattles.

AMM 67: No stockpiling or placement of erodible materials in waterways or along areas of natural stormwater flow where materials could be washed into waterways.

AMM 68: Stabilize stockpiled soil with geotextile or plastic covers.

AMM 69: Maintain construction activities within a defined project area to reduce the amount of disturbed area.

AMM 83: Sediments will be stored and transported in a manner that minimizes water quality impacts. If soil is stockpiled, no runoff will be allowed to flow back to the channel.

AMM 84: 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. Fiber rolls used for erosion control will be certified as free of noxious weed seed. Filter fences and mesh will be of material that will not entrap reptiles and amphibians. Erosion control measures will be placed between the outer edge of the buffer and the project site.

XI. Land Use and Planning

Would the Project:	**Potentially Significant Impact**	**Less than Significant With Mitigation Incorporated**	**Less Than Significant Impact**	**No Impact**
a. Physically divide an established community?				X
b. 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?				X

Discussion

(a) No Impact. The Project would not result in any changes in land use or zoning. The Project does not include features that could temporarily or permanently divide an established community. No impact would result.

(b) No Impact. Implementation of the proposed Project would not change land use. Once constructed, operation and maintenance of the VPS would be consistent with the existing conditions the Conditional Use Permit issued by the Town of Los Gatos for the use of the site. Implementation of the Project would not conflict with a land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating and environmental impact. No impact would result.

Mitigation Measures

No mitigation measures needed.

XII. Mineral Resources

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

Discussion

(a) No Impact. The VPS was constructed in 1975. There are no known mineral resources at the Project Site. The Project would upgrade the existing VPS within the footprint of the existing facilities. No earthwork would occur in native soil. The Project would not result in changes in land use, the expansion of the Vasona Pump Station, or any other changes that could affect mineral resources. No impact would result.

(b) No Impact. The Los Gatos 2020 General Plan does not identify locally important mineral resources within the Town Limits. No impact would result.

Mitigation Measures

No mitigation measures needed.

XIII. Noise

Would the Project result in:	**Potentially Significant Impact**	**Less than Significant with Mitigation Incorporated**	**Less Than Significant Impact**	**No Impact**
a. Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the Project in excess of standards established in the local general plan or noise ordinance or applicable standards of other agencies?		X		
b. Generation of excessive ground borne vibration or ground borne noise levels?			X	
c. For a Project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the Project expose people residing or working in the area to excessive noise levels?				X

Regulatory Setting

<u>Town of Los Gatos Municipal Code Noise Ordinance</u>

The Town of Los Gatos Noise Ordinance (Section 16.20.035 of the Los Gatos Municipal Code) establishes the Town's noise limits related to construction noise and land use compatibility. The applicable noise limits are described in the impact discussions, below.

Existing Conditions

The existing predominant source of noise in the Town of Los Gatos and at the VPS is vehicular traffic. Roadways with the highest traffic volumes and speeds generally produce the highest noise levels, which, in the Town of Los Gatos, include State Route (SR) 9, SR 17 and SR 85. Highway right-of-way for SR 17 and SR 85 are south and east of the Project Site. Occasionally, noise sources are generated from commercial and industrial land uses located near residential areas with activities like delivery trucks, air compressors, generators, etc. Other significant stationary noise sources within the Town include construction activities, street sweepers, gas-powered leaf blowers, airports, fire and police stations, hospitals schools, and parks. Majority of these stationary sources are temporary and intermittent (Town of Los Gatos, 2022a).

The responses in this section are based on the *Vasona Pump Station Upgrade Noise Study* prepared for by Ganddini Group, Inc. and dated March 22, 2022. This report can be found in **Appendix C** and includes the results of short-term, hourly, and 24-hour noise measurements taken at the Project Site boundary on Fremont Court (behind single family residences on Mojonera Court) and Off-site Staging Area boundary (next to multi-family residential uses on Winchester Circle) in January 2022. The report provides an assessment of Project-related construction and operational noise impacts associated with the VPS Upgrade Project.

The Project Site is bordered by single-family residences on Mozart Avenue and Mojonera Court to the north, Los Gatos Creek to the west, Fremont Court to the south (with SR-85 further south), and Fremont Court and Oka Road to the east. The Off-site Staging Area is bordered by neighborhood commercial to the north (the Aventino Apartments and Netflix' offices), Los Gatos Creek to the east, SR-85 to the south, and Winchester Boulevard to the west. To document existing ambient noise levels, an American National Standards Institute (ANSI Section S1.4 2014 Class 1) Larson Davis model LxT sound level meter was utilized. Two (2) 24-hour noise measurements were taken January 18 and 19, 2022, from Fremont Court (reference address is 116 Mojonera Court), and adjacent to the Off-site Staging Area near the multi-family residential buildings on Winchester Circle (reference address is 200 Winchester Circle) (**Figure 9**). Based on the 24-hour noise measurements, ambient noise levels ranged from 49.2 dBA at 2AM to 64.7 dBA between 7AM and 8AM.

Discussion

(a) Less than Significant with Mitigation Incorporated. The closest sensitive receptors to the VPS site are single-family residences on Mozart Avenue and Mojonera Court at the northern property boundary. The closest sensitive receptors to the Off-site Staging Area are the multi-family residences at the Aventino Apartments at the northern property boundary.

Construction Noise (Temporary Noise Increases)

Construction noise will vary depending on the construction phase, the construction method and equipment, distance from sensitive receptors, and the construction hours, schedule, and duration. Typical noise levels for a variety of construction equipment compiled by the U.S. Department of Transportation are presented in **Table 18**. Typical operating cycles for these types of construction equipment may involve one or two minutes of full power operation followed by three to four minutes at lower power settings.

Table 18: Typical Construction Equipment Noise Levels at 25 Feet

Construction Equipment	Distance from Construction Work Area (ft)	Noise Level (dBA L_{eq})
Loader/ Backhoe	25	86
Crane	25	81
Paving Equipment	25	84
Compactor	25	82
Skid-Steer Loader	25	81
Hand Equipment	25	88
Potable Pump	25	84

SOURCE: Ganddini Group, 2022b. *Vasona Pump Station Upgrade Noise Study*.

Section 16.20.035 of the Town of Los Gatos Code regulates construction-related noise to protect the peace, health, and safety of its citizens. The ordinance states that between the hours of 8AM to 6PM on weekdays, and 9AM to 4PM on Saturdays, construction is allowed if it meets *at least one* of the following:

- Noise Limitation 1: No individual piece of equipment shall produce a noise level exceeding eighty-five (85) dBA at twenty-five (25) feet. If the device is located within a structure on the property, the measurement shall be made at distances as close to twenty-five (25) feet from the device as possible.
- Noise Limitation 2: The noise level at any point outside of the property plane shall not exceed eighty-five (85) dBA.

As stated in **Section 2**, Project Description, construction is planned to occur Monday through Friday 8AM to 6PM, consistent with the Town of Los Gatos construction work hours. However, if nighttime or weekend construction is necessary to meet the schedule, to minimize noise levels and the risk of disrupting nearby residences, any nighttime and weekend work would occur indoors, inside buildings and structures such as the Pump Building, Pilot Building, and new Electrical Building, and would therefore be consistent with the Town of Los Gatos Noise Ordinance.

The following construction equipment is anticipated to be used during Project construction: trucks/trailers, a crane, a backhoe, a loader, a compactor, a skid steer loader, paving equipment, portable pumps, generators, welding equipment, air compressors, a concrete pump truck, a dump truck, and a forklift. Based on the typical construction equipment noise levels provided in **Table 18**, above, individual pieces of construction equipment could exceed 85 dBA at a distance of 25 feet, thereby exceeding Noise Limitation 1.

To assess the Project's ability to comply with Noise Limitation 2, construction-related noise levels at the nearest sensitive receptors (i.e., at the single-family residences on Mozart Avenue and Mojonera Court and at the multi-family residential building on Winchester Circle) were estimated using methodology presented in the Federal Transit Administration's (FTA) *Transit Noise and Vibration Impact Assessment Manual* (2018), incorporating construction parameters such as distance from sensitive receptors, types of construction equipment, number of each type of construction equipment, percent usage factor, and measured ambient noise levels. Construction noise levels were calculated assuming that all construction equipment would be operated simultaneously. While this is unlikely, calculations are intentionally conservative due to proximity to sensitive receptors. As shown in **Table 19**, Project-related construction noise levels could be as high as 87 dBA L_{eq} at the closest residential receptors on Mozart Avenue, Mojonera Court, and Winchester Circle, thereby exceeding the Town of Los Gatos' 85-dBA noise limit at the property line.

Without mitigation, the proposed Project's impact related to construction-related noise levels would be potentially significant. However, implementation of **Mitigation Measure MM NOI-01 (Short-term Construction Noise Attenuation Measures)** would ensure that the Project complies with applicable noise standards. With implementation of this mitigation measure, which requires that either construction equipment specifications be reviewed to ensure each piece equipment does not generate noise levels greater than 85 dBA at a distance of 25 feet, or that noise attenuation measures be installed to maintain construction noise levels at 85 dBA L_{eq} or less at the property boundaries, the impact would be reduced to a less-than-significant level.

Table 19: Estimated Construction Equipment Noise Levels at Property Lines

Receptor Location	Construction Noise Levels (dBA L_{eq})	Needed Sound Reduction (dB)	Construction Noise Levels with Mitigation Measures (dBA L_{eq})	Mitigated Noise Levels Exceed 85 dBA Standard?
Single Family Residences at Northern Project Site Boundary	87	2	85	No
Multi-Family Residences at Offsite Staging Area Northern Boundary	87	2	85	No

SOURCE: Ganddini Group, 2022b. *Vasona Pump Station Upgrade Noise Study*.

Operational Noise (Permanent Noise Increases)

Operational noise sources associated with the Project would include a 1,250kW standby diesel-powered backup generator located in a noise-attenuating enclosure, four new 600-hp pumps inside the Pump Building, a 100 kW replacement natural gas backup generator inside the Pump Building, and a new PG&E transformer. Long-term, approximately 20 dB of attenuation per concrete block building with no windows and door closed would occur. The new PG&E transformer would not exceed 47 dBA at a distance of 50 feet.

Project operational noise has the potential to impact adjacent single family and multiple family residential land uses. Per Section 16.20.15 of the Town Code, pertaining to exterior noise levels for residential zones, no person shall cause, make, suffer or allow to be made by any machine, animal, device or any combination of same in a residential zone, a noise level more than 6 dB above the noise level specified for that particular noise zone, as shown on the Noise Zone Map, during that particular time frame, at any point outside of the property plane.

Town of Los Gatos Noise Zone Maps are divided into three time periods: 6AM to 1PM, 1PM to 10PM, and 10PM to 6AM. The VPS would be operated during all of these time periods. Noise associated with project operation may affect properties to the north of the Project Site. The Noise Zone Maps show the criteria to be 55 dBA L_{eq} between the hours of 6AM and 1PM, 56 dBA L_{eq} between the hours of 1PM and 10PM and 48 dBA L_{eq} between the hours of 10PM and 6AM. However, there is a note on the Noise Zone Maps that instructs that these criteria should be lowered by 5 dB if the noise is to occur on weekends or holidays which needs to be done because operational noise could also occur on weekends and holidays. Because operational noise would be continuous, it is most prudent to choose the lowest criteria as a design goal not to exceed, which is 48 dB — 5 dB (weekend & holiday penalty) + 6 dB (per Section 16.20.015) = 49 dBA.

Activities at the existing on-site staging area are expected to remain the same during operation of the VPS with implementation of the Project. Existing noise levels at the northern property line range between 49.2 dBA L_{eq} at 1AM in the morning and 64.7 dBA L_{eq} at 11AM in the morning. The primary noise source at this location is vehicle traffic associated with Highway 85 and Winchester Boulevard. Occasional noise events associated with the proposed Project would be secondary to vehicle noise.

Noise associated with the proposed improvements on APN 424-08-076 was modeled using the SoundPLAN noise modeling software. Exact sound specifications for the proposed operational equipment, including the new 1,250 kW diesel standby generator, Pump Building with four pumps, and a transformer are not yet available. Thus, the SoundPLAN noise model was utilized to develop design criteria for proposed equipment in order to not exceed the most conservative Town standard of 49 dBA L_{eq}. The design criteria listed below have been incorporated into the Project and would ensure the Project complies with the Town's Municipal Code.

- Pump Building Design Criteria: Not to exceed 61 dBA L_{eq} at northern wall of Pump Building.
- Generator Design Criteria: Not to exceed 64 dBA L_{eq} at northern side of generator enclosure.
- Transformer Design Criteria: Not to exceed 71 dBA L_{eq} at eastern side of enclosure.

The design criteria listed above, which have been incorporated into the Project, would ensure operational noise increases are less than significant. No mitigation is required.

(b) Less Than Significant Impact. The FTA guidelines set forth in the FTA Transit Noise and Vibration Assessment (2018) were used to assess vibration impacts. The FTA threshold at which there is a risk to "architectural" damage to non-engineered timber and masonry buildings is a peak particle velocity (PPV) of 0.2 in/sec, to engineered timber and masonry buildings is a PPV of 0.3 in/sec, and to reinforced-concrete, steel or timber buildings is a PPV of 0.5 in/sec. This analysis assumes a PPV of 0.3 or higher during Project construction could result in architectural damage to nearby residential structures.

Table 20: Typical Groundborne Vibration from Construction Equipment

Equipment	PPV at 25 ft, in/sec
Vibratory Roller	0.210
Back Hoe	0.089
Large Bulldozer	0.089
Loader	0.076
Jackhammer	0.035
Small Bulldozer	0.003

SOURCE: Federal Transit Administration, 2018. *Transit Noise and Vibration Impact Assessment Manual*.

Based on the typical groundborne vibration produced from construction equipment that would be used at the Project Site, vibration levels would not approach the 0.3 PPV threshold for architectural damage at adjacent residences. Thus, the impact of groundborne vibration related to architectural damage to nearby residential structures would be less than significant.

Construction-related groundborne construction could also lead to annoyance to sensitive receptors. However, the impact would only occur during daytime hours and would be temporary.

Long-term operation of VPS would not result in long-term groundborne vibration because similar equipment would be operated in a manner similar to existing conditions. Both construction-related and longterm impacts related to groundborne vibration would be less than significant. No mitigation measures are required.

(c) No Impact. There are no airports or private air strips within the Town of Los Gatos. The closest airports to the Project Site are the San Jose. Mineta International Airport located 6.75 miles northwest of the VPS. Because the Project Site is not located in the vicinity of a private airstrip, is not subject to an airport land use plan, and is located more than two miles from a public airport or public use airport, no impact related to exposure of people residing or working in the area to excessive noise levels would result.

Mitigation Measures

Mitigation Measure MM NOI-01: Construction Noise Attenuation Measures.

At least one of the following measures shall be implemented during Project construction to ensure construction noise levels comply with at least one of the Town of Los Gatos' Noise Limitations for construction.

1. To comply with the Town of Los Gatos' Noise Limitation 1 for construction noise, prior to construction, Valley Water or its contractors shall ensure that every piece of construction equipment to be utilized during Project construction would not exceed 85 dBA at a distance of 25 feet. This shall be achieved by reviewing and compiling construction equipment specifications from the equipment manufacturers, or by taking noise measurements in accordance with Town of Los Gatos' requirements for performing

noise measurements (see Section 16.10.010 of the Town of Los Gatos Code, under Definitions). If noise measurement data is already available, the existing data can be used and no additional noise measurements are needed. Consistency with Noise Limitation 1 shall be documented and made available to the Town of Los Gatos upon request.

OR

2. To comply with the Town of Los Gatos' Noise Limitation 2 for construction noise, Valley Water shall maintain construction noise levels at 85 dBA L_{eq} or less at the northern boundaries of the VPS site and (if used) Off-site Staging Area by implementing all of the following:

   a. Limiting all outdoor construction activities, including deliveries of construction materials and equipment, to between the hours of 8:00AM to 6:00PM on weekdays, and 9:00AM to 4:00PM on Saturdays.

   b. Locating stationary noise generating equipment such as air compressors and portable generators as far from sensitive receptors as possible, and orienting the equipment in a manner that directs the emitted noise away from the closest noise-sensitive receptors. (The closest sensitive receptors to the VPS site are the single-family residences on Mozart Avenue and Mojonera Court. The closest receptors to the Offsite Staging Area are the Aventino Apartments on Winchester Circle.)

   c. Ensuring all gasoline-powered construction equipment, fixed or mobile, has a properly operating and maintained muffler or baffling system.

   d. Prohibiting unnecessary idling of internal combustion engines; ensuring equipment is shut off and not left to idle when not in use.

   e. Controlling noise from construction worker radios such that they are not audible at any property boundary.

   f. Monitoring construction noise at the northern property boundary of the VPS site and Offsite Staging Area with a Precision Sound Level Meter (see Section 16.10.010 of the Town of Los Gatos Code, under Definitions) and taking immediate action if noise levels exceed 85 dBA. Noise measurements shall be taken when an individual piece of construction equipment is first operated, anytime additional pieces of equipment or types of equipment are added and operating simultaneously, when equipment is moved and operated closer to the nearest sensitive receptors, and when any other conditions change that could increase construction noise levels at the property boundaries. If noise monitoring indicates construction noise levels exceed 85 dBA at the property boundary, the construction contractor shall implement one or more of the following measures until compliance is achieved:

      (1) Reduce the number of pieces of construction equipment or different types of construction equipment that are operated simultaneously.

      (2) Install solid sound barriers (1-inch thick plywood is acceptable) and/ or blankets with no holes or cracks (except for openings for access) between construction equipment and the sensitive receptor(s).

(3) Shield jackhammers, pneumatic equipment, and other portable stationary noise sources using acoustic enclosures/or acoustical tents.

Consistency with Noise Limitation 2 shall be documented and made available to the Town of Los Gatos upon request.

For the duration of construction activities, the Valley Water Office of Communications will serve as the contact person should noise and/or vibration levels cause annoyance to local residents. A sign will be posted at the project site with the contact phone number.

Figure 9: Noise Measurement Locations

Note:
Noise measurements performed from January 18th, 2022 to January 19th, 2022.

XIV. Population and Housing

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

Regulatory Framework

The California Department of Housing and Urban Development has established a statewide housing plan with providing affordable and stable housing for all residents. To this end, a Regional Housing Needs Assessment (RHNA) is generated for all areas of California based on the number of new jobs projected in each area and the new housing that would be needed to accommodate these jobs. Each local jurisdiction is responsible for developing and implementing a General Plan Housing Element to fulfill RHNA goals. In addition, plans for the management of regional growth are established and implemented by the Association of Bay Area Governments (ABAG) for the purpose of balancing growth and sustainable use of natural resources within the region. The local jurisdictions, including the Town of Los Gatos, are representatives of ABAG and participate in development and implementation of regional housing plans.

Existing Conditions

For the period between 2023 and 2031, the ABAG's Final Regional Housing Needs Allocation Plan for the San Francisco Bay Area indicates that 123,577 additional housing units are needed. Santa Clara County's population has grown from 1.786 million residents in 2010 to 1.886 million residents as of 2021. The County contains major metropolitan areas of Northern California including San Jose (1.014 million residents), Santa Clara (127,452 residents), and Sunnyvale (156,291 residents) (US Census, 2021).

The VPS is located in the Town of Los Gatos. The 2023-2031 RHNA conducted by ABAG indicates that the Town needs to produce approximately 1,993 additional housing units by 2050 to accommodate its share of expected regional growth. As the number of households grow due to population increase, the regional infrastructure would need to continually upgrade to meet changes in demand.

Discussion

(a) No Impact. The Project would not induce unplanned growth. Rather, it would meet the projected future demand for treated water based on the growth that has been approved in the adopted General Plans prepared by the local jurisdictions in Santa Clara County. Once constructed, the VPS would be operated and maintained similar to existing conditions and would not increase staffing requirements. Thus, the Project would not induce substantial population growth either directly or indirectly. No impact would result.

(b) No Impact. The Project Site was developed for the VPS since 1975. Project implementation would not displace existing people or housing and would not require the construction of replacement housing. No impact would result.

Mitigation Measures

No mitigation measures needed.

XV. Public Services

Would the Project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities or the need for new or physical 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:	**Potentially Significant Impact**	**Less than Significant with Mitigation Incorporated**	**Less Than Significant Impact**	**No Impact**
a. Fire protection?				X
b. Police protection?				X
c. Schools?				X
d. Parks?				X
e. Other public facilities?				X

Public Service Providers

Fire Protection

Fire protection services are provided by Santa Clara County Fire Department (SCCFD). The County Fire Department has 15 stations with their administrative headquarters in Los Gatos, California. SCCFD covers approximately 128 square miles and serves a population of over 226,700. The closest fire department to the Project Site is Winchester Fire Station (14850 Winchester Boulevard, Los Gatos, CA 95030), approximately 1.1 miles southwest from the Project Site.

Police Protection

Police services are provided by the Town of Los Gatos Monte Sereno Station. The police department is a resource for both Los Gatos and Monte Sereno communities covering approximately 1.5 square miles and serving a population of approximately 3,500. The department has a staff of 39 sworn officers and 20 civilian employees including approximately 150 active citizen volunteers. The closest police station to the Project Site is Los Gatos Monte Sereno Station (110 E. Main St., Los Gatos, CA 95032) located approximately 3.8 miles south.

Schools

School services in the Town of Los Gatos are provided by Los Gatos Union School District for kindergarten through eighth grade (2,650 students), and Los Gatos High School for grades nine through twelve (2,050 students).

Parks

The Santa Clara County park system is comprised of 28 regional parks encompassing over 52,000 acres managed by Santa Clara County Parks and Recreation Department. The closest park to the VPS is the Los Gatos Creek County Park, which includes the Los Gatos Creek Trail on the west side of Los Gatos Creek, opposite the VPS.

Santa Clara Valley Water District

Valley Water is the wholesale water purveyor for Santa Clara County. Valley Water's service area is 1,300 square miles (the area of Santa Clara County) and includes the Town of Los Gatos (approximately 28,800 residences). Valley Water provides treated water to its retail customers—the local jurisdictions in the County—including the Town of Los Gatos, which, in turn, sell potable water to local residents and businesses. Valley Water also managing groundwater resources in the County by recharging the Santa Clara and Llagas Subbasins via 99 groundwater recharge facilities, issuing permits for well drilling and abandonment, protecting groundwater from contamination, and preventing was or diminution of groundwater resources in the County.

Discussion

(a-e) No Impact. The Project would not change existing or approved future demand for public services and utilities. VPS operation would be maintained during construction and there would be no interruption in service resulting in the need for temporary or bypass services. The Project would upgrade outdated infrastructure at the VPS and meet the projected future demand for treated water from approved future population growth and the approved buildout of the General Plans of the local jurisdictions, including the Town of Los Gatos General Plan and Santa Clara County General Plan. The Project would not increase demand for public services. The Project would not result in substantial adverse physical changes requiring new or physically altered governmental facilities for fire, police protection, schools, parks or other public facilities. Project implementation would have no impact on public services.

Mitigation Measures

No mitigation measures needed.

XVI. Recreation

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

Discussion

(a) No Impact. Project implementation would not create long-term employment, build housing, or increase the local population. The Project would not increase the use of existing neighborhood and regional parks. It is possible that the construction crew not exceeding 20 persons would utilize nearby parks and trails during lunch or after work on weekdays; however, this would be limited in scope, temporary and intermittent, and would not result in physical deterioration or accelerated deterioration of regional parks or other recreational facilities. No impact would result.

(b) No Impact. The Project does not include recreational facilities. Because Project implementation would not increase population, it would not require construction or expansion of recreational facilities that may have an adverse physical effect on the environment. No impact would result.

Mitigation Measures

No mitigation measures needed.

XVII. Transportation

Would the Project:	**Potentially Significant Impact**	**Less than Significant With Mitigation Incorporated**	**Less Than Significant Impact**	**No Impact**
a. Conflict with an applicable plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities?				X
b. Conflict with or be inconsistent with CEQA Guidelines §15064.3(b)?			X	
c. Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?			X	
d. Result in inadequate emergency access?			X	

Regulatory Framework

CEQA Guidelines

The new CEQA Guidelines Section 15064.3, subdivision (b) was adopted in December 2018 by the California Natural Resources Agency. These revisions to the CEQA Guidelines criteria for determining the significance of transportation impacts are primarily focused on projects within transit priority areas and shifts the focus from driver delay to reduction of greenhouse gas emissions, creation of multimodal networks, and promotion of a mix of land uses. The criteria shift the focus of transportation impact analysis away from level of service (LOS) in favor of VMT. CEQA Guidelines Section 15064.3(b) requires a numeric VMT analysis for land use development projects that result in long term or permanent increases in VMT. For projects like the proposed Project, which would not change land uses nor result in a permanent increase in VMT, CEQA Lead Agencies can elect to use a qualitative VMT analysis.

Plan Bay Area 2050

The Metropolitan Transportation Commission (MTC) and Association of Bay Area Governments (ABAG) adopted *Plan Bay Area 2050* in 2021 pursuant to the Sustainable Communities and Climate Protection Act of 2008 (SB 375). *Plan Bay Area 2050* establishes 35 strategies to improve housing, the economy, transportation, and the environment across Bay Area's nine counties. Twelve transportation strategies are aimed at maintaining and optimizing existing roads and transit infrastructure, creating healthy and safe streets, and building a next-generation transit network (MTC and ABAG, 2021).

Existing Conditions

The primary roads providing access to the VPS are State Route (SR) 85 (Norman Y. Mineta Highway), SR 17, Fremont Court, Oka Lane, and Oka Road. SR 85 and SR 17 are the regional transportation routes connecting the Town of Los Gatos to neighboring cities and the rest of the region. SR 85 borders the southeastern property boundary of the VPS and provides access to the VPS from the north and south; SR 17 is east of the VPS and provides access from the east and west. The VPS is located on Fremont Court, a local street, which provides direct access into the VPS from Oka Lane and Oka Road. Oka Lane and Oka Road are neighborhood collector streets that run northeast to southwest near the eastern portion of the VPS and terminate at a cul-de-sac terminus south of the VPS .

Discussion

(a) No Impact. Construction of the Project would not require partial or complete closure of vehicular travel lanes or bicycle paths, nor construction on any public right of ways, including road shoulders. Construction would not interfere with public transit routes or require temporary closure or relocation of public transit stops. There would be a temporary increase in vehicle trips to the VPS during construction from mobilization and demobilization of heavy construction equipment, construction worker commuting, and materials deliveries. Temporary increase would not conflict with any plans, ordinances, or policies addressing transit, roadway, bikeway, or pedestrian facilities.

Upon completion of construction, implementation of the Project would have no effect on transportation and circulation. No alterations to existing roadways are proposed and there would be no changes to the transportation facilities in the vicinity of the VPS. vehicle transportation or roadway configurations. The Project would not change land uses at the VPS or Off-site Staging Area and the operations and maintenance of the VPS would be similar to existing conditions. Thus, future operations and maintenance of VPS would not conflict with any plans, ordinances, or policies addressing transit, roadway, bikeway, or pedestrian facilities. No impact would result.

(b) Less Than Significant Impact. The Project would not conflict or be inconsistent with Section 15064.3 of the CEQA Guidelines, which considers a Project's transportation impacts by evaluating the VMT attributable to the Project. The Project would only generate a temporary increase in VMT during the 18 months of construction. The Project would not permanently impact vehicle traffic in the Project vicinity, as the Project would not induce growth, result in land use changes, or permanently alter traffic or circulation. Following Project construction, no additional maintenance would be required beyond what is already occurring. Therefore, no permanent increase in VMT would occur as a result of the Project. The impact would be less than significant.

(c) Less Than Significant Impact. The Project would not change land uses and does not include new design features (e.g., new facilities or obstructions within public roadways) or alterations of existing roadways (e.g., road realignment). No permanent changes to traffic or transportation hazards would occur.

During Project construction, heavy vehicles and equipment would access the VPS via Oka Lane or Oka Road. The presence of large, slow-moving equipment among the general-purpose traffic on roadways in the Project vicinity could result in temporary safety hazards. However, implementation of **BMP TR-1 (Incorporate Public Safety Measures)**, which would require flagging, fencing, and signage to give the public adequate warning of Project construction, the temporary increase in safety hazards from construction trucks and equipment turning into the VPS would be less than significant. No mitigation is required.

(d) Less Than Significant Impact. Implementation of the Project would not result in inadequate emergency access. Implementation of the Project could interfere with emergency response services or an emergency evacuation plan if construction activities included the complete or partial closure of roadways or otherwise restricted access for emergency response vehicles, or restricted access to critical facilities such as hospitals or fire stations. Project construction activities would not require partial or complete closure of any roads or travel lanes, nor otherwise restrict access for emergency response vehicles. Further, there are no emergency response facilities (hospitals, fire departments, or police stations) near the Project Site and Project construction would have no effect on vehicular access in the vicinities of such facilities. The impact would be less than significant, and no mitigation is required.

Best Management Practices

BMP TR-1: Incorporate Public Safety Measures.

Fences, barriers, lights, flagging, guards, and signs would 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.

Mitigation Measures

No mitigation measures needed.

XVIII. Tribal Cultural Resources

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

Regulatory Framework

Effective July 2015, Assembly Bill 52 (AB 52) requires consideration of tribal cultural resources in the CEQA process. To help determine whether a project has the potential to impact tribal cultural resources, CEQA Lead Agencies are required to consult with any California Native American tribe that requests consultation and is traditionally and culturally affiliated with the geographic area of the project. Topics that may be addressed during consultation include tribal cultural resources, the potential significance of project impacts, type of environmental document that should be prepared, and possible mitigation measures and project alternatives.

Public Resources Code Section 21074(a) defines tribal cultural resources as:

> "Sites, features, places, cultural landscapes (geographically defined in terms of the size and scope), sacred places, and objects with cultural value to a California Native American tribe that are either of the following:
>
> a. Included or determined to be eligible for inclusion in the California Register of Historical Resources; and/or
> b. Included in a local register of historical resources as defined in subdivision (k) of Section 5020.1; and/or
> c. A resource determined by the Lead Agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Section 5024.1. In applying the criteria set forth in subdivision (c) of Section 5024.1 for the purposes of this paragraph, the Lead Agency shall consider the significance of the resource to a California Native American tribe."

Because criteria a) and b) also meet the definition of a historical resource under CEQA, a tribal cultural resource may also require additional consideration as a historical resource. Tribal cultural resources may or may not exhibit archaeological, cultural, or physical indicators. Public Resources Code Section 21073 defines California Native American tribes as "a Native American tribe located in California that is on the contact list maintained by the NAHC for the purposes of Chapter 905 of the Statutes of 2004." This includes federally and non-federally recognized tribes.

Recognizing that California tribes are experts in their tribal cultural resources and heritage, AB 52 requires that CEQA Lead Agencies carry out the consultation with tribes at the commencement of the CEQA process to identify tribal cultural resources. Furthermore, because a significant effect on a tribal cultural resource is considered a significant impact on the environment under CEQA, consultation is required to develop appropriate avoidance, impact minimization, and mitigation measures.

Tribal Consultation

Pursuant to Assembly Bill 52 (AB 52) and Public Resources Code Section 21080.3.1, on November 23, 2021, the Tamien Nation of the Greater Santa Clara County requested formal notification of Valley Water's proposed Projects within the Tamien Nation's geographic area of traditional and cultural affiliation. Valley Water sent the Tamien Nation's tribal contacts formal notification of the proposed VPS Upgrade Project and AB 52 tribal consultation opportunity on January 30, 2023. On November 12, 2023, Valley Water sent the Muwekma Ohlone Indian Tribe of the San Francisco Bay Area formal notification of the proposed VPS Upgrade Project and AB 52 tribal consultation opportunity. No request for consultation was received from either the Tamien Nation or Muwekma Ohlone Indian Tribe within the 30-day response periods.

On November 16, 2022, Valley Water requested a Sacred Lands File Search from the Native American Heritage Commission (NAHC). The NAHC responded on December 6, 2022, and found no recorded resources at the Project Site, Off-site Staging Area, or adjacent parcels.

NAHC also provided contact information for other Native American tribes that might possess knowledge of the cultural resources in the Project area. Although not required by AB 52, on February 2, 2023, Valley Water sent informal letters requesting information about tribal cultural resources to tribal contacts of the Amah Mutsun Tribal Band, Amah Mutsun Tribal Band of Mission San Juan Bautista, Indian Canyon Mutsun Band of Costanoan, Muwekma Ohlone Indian Tribe of the San Francisco Bay Area, North Valley Yokuts Tribe, Ohlone Indian Tribe, and the Wuksache Indian Tribe/Eshom Valley Band. No responses were received within the 30-day response period.

Existing Conditions

The Project Site was developed in 1975 when the VPS was constructed. All of the proposed facility improvements and upgrades, as well as the on-site and off-staging areas that would be used to support Project construction, are located in previously disturbed areas. Soil sampling conducted as part of a 2013 site-specific geotechnical investigation indicates the Project Site is underlain by approximately 7 feet of engineered fill. Trenching and excavations that would occur during Project construction would be no deeper than 5 feet, so within the 7 feet of engineered fill. Because Project implementation would not disturb native ground, it is highly unlikely that any buried or surficial tribal cultural resources are present that could be negatively impacted by the Project. For the reasons described above, any remnants of tribal cultural resources still existing at the Project Site would have been impacted during the initial development of the Project Site, thereby substantially adversely affecting the significance of the resource.

A Phase I Cultural Resources Assessment for the proposed Project was conducted by BCR Consulting, LLC and dated June 3, 2022 (BCR Consulting, 2022). BCR Consulting reviewed and summarized the results of a cultural resources records search performed by the Northwest Information Center (NWIC) on November 19, 2021. This research revealed that 26 cultural resource studies have been completed and six cultural resources have been identified within 0.5-mile of the VPS. The previously recorded resources are historic-period single-family residences and a historic-period ranch. The VPS has never been subject to a previous cultural resource assessment, and no cultural resources have been previously identified within its boundaries.

BCR Consulting also conducted an intensive-level cultural resource field survey of the Project Site and Off-site Staging Area on May 3, 2022. The field survey found no evidence of cultural resource sensitivity or geoarchaeological context. With respect to existing site conditions due to disturbance that occurred in 1975 when the VPS was constructed, BRC Consulting noted, "Ground disturbances were severe and resulted from mechanical excavation for the pump station and grading to flatten the site for vehicle access and parking.

Discussion

(a) No Impact. Pursuant to AB 52 and Public Resources Code Section 21080.3.1, Valley Water sent the California Native American tribe traditionally and culturally affiliated with the geographic area notice of the proposed Project on January 30, 2023, and did not receive a request for consultation. As a result, it is assumed consultation is not desired. This is a reasonable assumption given that all disturbance that would result from implementation of the Project would occur in previously disturbed areas and within the 7 feet of engineered fill that was placed at the site when the VPS was constructed in 1975.

Per the Phase I Cultural Resources Assessment prepared by BRC Consulting for the Project, there are no previously recorded cultural resources, including resources listed or eligible for listing in the National Register of Historic Resources, California Register of Historic Resources, or any local register of historic resources, at or adjacent to the Project Site. No evidence of cultural resource sensitivity or geoarchaeological context was observed during the field survey. With respect to the disturbance that occurred in 1975 when the VPS was constructed, BRC Consulting noted, "Ground disturbances were severe and resulted from mechanical excavation for the pump station and grading to flatten the site for vehicle access and parking."

Since the Project would not disturb native ground and none of the research has produced any evidence, indication, or suggestion that tribal cultural resources of significant value could be present at the site, there would be no impact.

(b) No Impact. The Phase I Cultural Resources Assessment prepared for the Project does not suggest any tribal cultural resources of significant value are present at the Project Site. No known tribal cultural resources have been identified at the Project Site or Off-site Staging Area and, given the extent and severity of the disturbance that occurred when the VPS was construction, there is no reason to assume the Project has the potential to result in a substantial adverse change in the significance of a known tribal cultural resource. In the unlikely event that unknown tribal cultural resources are encountered during construction, Valley Water's construction contractor would implement BMP CU-1 (Accidental Discovery of Archaeological Artifacts, Tribal Cultural Resources, or Burial Remains), which identifies the procedures that would be implemented if an accidental discovery were to occur. Due to the low site sensitivity and with implementation of BMP CU-1, no impact is anticipated.

Mitigation Measures

No mitigation measures needed.

XIX. Utilities and Service Systems

Would the Project:	**Potentially Significant Impact**	**Less than Significant with Mitigation Incorporated**	**Less Than Significant Impact**	**No Impact**
a. Require or result in the relocation or construction of new or expanded water, wastewater treatment, stormwater drainage, electric power, natural gas, or telecommunication facilities, the construction or which could cause significant environmental effects?			X	
b. Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry, and multiple dry years?				X
c. Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?				X
d. Generate solid waste in excess of state or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?			X	
e. Comply with federal, state, and local statutes and regulations related to solid waste?				X

Regulatory Framework

California Integrated Waste Management Act of 1989

The California Department of Resources, Recycling, and Recovery (CalRecycle), formerly known as the California Integrated Waste Management Board (CIWMB), oversees, manages, and tracks waste generated in California. The California Integrated Waste Management Act of 1989 requires that all California cities and counties implement programs to reduce, recycle, and compost waste and divert at least 50 percent of wastes from landfills. Cities and counties track diverted waste by counting the materials disposed at landfills and subtracting that amount from the base-year amount.

Existing Conditions

West Valley Sanitation District provides sanitary sewer services in the Town of Los Gatos. West Valley Collection and Recycling, LLC, provides garbage collection and recycling services. Pacific Gas and Electric provides electrical power and natural gas. The VPS receives electrical power via a PG&E-owned transformer. San Jose Water Company is the retail water supplier, while Valley Water is the wholesale water purveyor for the County.

Valley Water provides wholesale potable water for businesses and residences within the county through the operation and maintenance of 10 dams and surface water reservoirs, three water treatment plants, an advanced recycled water purification center, a state-of-the-art water quality laboratory, 142 miles of raw and treated water pipelines, 101 groundwater recharge ponds covering 276 acres, and more than 275 miles of jurisdictional streams, including 91 miles suitable for in-stream recharge. By 2045, the population within the county is anticipated to increase by approximately 36 percent. To better serve a growing population, Valley Water utilizes their Demand Model and ABAG's 2017 Plan Bay Area, a long-range regional transportation and land-use blueprint, to plan around factors like population growth, drought, conservation, and economic conditions. Valley Water's *Capital Improvement Program Fiscal Years 2024-28 Five-Year Plan* (CIP) has identified areas within the regional water supply system that need to be improved to accommodate various factors including a growing population, aging infrastructure, inefficiencies, etc. The proposed Project is included in the CIP to ensure that businesses and residences in the County receive adequate water supply into the future (Valley Water, 2023).

Discussion

(a) Less Than Significant Impact. The Project would improve the operational reliability and flexibility of the existing VPS by modernizing major equipment that has reached the end of its useful life. The Project would not relocate or construct new or expanded water, wastewater, storm water, natural gas, or telecommunication facilities. The Project would not affect land uses nor increase the population in the Town of Los Gatos and would not result in new or expanded demand for utilities and service systems.

The Project would replace and relocate the existing PG&E transformer from the easterly driveway at Fremont Court to the northeast property corner of the VPS site. The Project would install upgraded electrical components and new electrical lines to connect the upgraded electrical components to the new PG&E transformer. However, no significant impacts are anticipated to result from the replacement and relocation of the transformer or electrical upgrades. Thus, the impact related to new or expanded utility infrastructure would be less than significant. No mitigation is required.

(b) No Impact. This Project would not increase water demand at the VPS. The Project would help meet the projected future demand for treated water based on the growth approved by the local jurisdictions in Santa Clara County and presented in their adopted General Plans. No new or expanded water supply entitlements would result from implementation of the Project. No impact would result.

(c) No Impact. The Project would not increase the demand for wastewater treatment at the VPS. No impact would result.

(d) Less Than Significant Impact. No additional local waste would be generated during long-term operation of the Project. The long-term operation of the Project would not change substantively. The Town of Los Gatos generates approximately 3,650 tons or 10,950 cubic yards of solid waste daily. The Town's landfill—the Guadalupe Landfill— has a remaining capacity of 11,055,000 cubic yards and is projected to reach capacity in 2048 (Town of Los Gatos, 2022b). The Project would increase waste generated at the VPS during demolition and construction due to the disposal of old equipment such as valves, pumps, conduit, and electrical wires that cannot be recycled. An estimated 254 cubic yards of spoils requiring offsite disposal would be generated during construction. Construction waste and debris requiring offsite disposal would not significantly impact the capacity of the Guadalupe Landfill. Adequate landfill capacity exists to accept Project construction waste; therefore, impacts related to exceeding permitted landfill capacity would be less than significant.

(e) No Impact. Santa Clara County is in compliance with the State's 50 percent annual waste diversion goal with approximately 58 percent of waste diverted from landfills annually (CalRecycle 2011a, 2011b). The Town of Los Gatos' General Plan Policy PFS-4.1 Recycling of Reusable Materials requires the recycling of reusable materials from Projects, when feasible.

The Project would support the State's waste diversion goal and Town of Los Gatos' General Plan policy by reusing demolition materials and reusing conduit, cable, etc. were feasible. As a result, the Project would comply with all applicable federal, state, and local solid waste statutes and regulations. No impact would result.

Mitigation Measures

No mitigation measures needed.

XX. Wildfire

If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the Project:	**Potentially Significant Impact**	**Less than Significant With Mitigation Incorporated**	**Less Than Significant Impact**	**No Impact**
a. Substantially impair an adopted emergency response plan or emergency evacuation plan?				X
b. Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose Project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?				X
c. Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines, or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?				X
d. Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?				X

Regulatory Setting

The CEQA Guidelines were amended in 2019 to address the need to evaluate wildfire impacts. The Appendix G checklist amendments apply to projects located in or near State Responsibility Areas (where the State has financial responsibility of preventing and suppressing fires), or lands classified as very high fire severity zones by local agencies.

Existing Conditions

The California Department of Forestry and Fire Protection maps fire hazards within State Responsibility Areas (SRAs) based on fuel loading, slope, fire weather, and other relevant factors, including areas where winds have been identified as a major cause of wildfire spread. The VPS is 3 miles from the closest designated Very High Fire Hazard Severity Zone in a SRA. (CAL FIRE, 2023). All of the Town of Los Gatos, including the VPS, is within a Local Responsibility Area (i.e., the County is responsible for preventing and suppressing fires). The Project Site and Off-site Staging Area are not part of the Wildland Urban Interface Zone, which is the primary area of concern for risks associated with wildfires.

Discussion

(a) No Impact. The Project is not located in or near a State Responsibility Area or lands classified as very high fire hazard severity zones. No impact would occur.

(b) No Impact. The Project is not located in or near a State Responsibility Area or lands classified as very high fire hazard severity zones. No impact would occur.

(c) No Impact. The Project is not located in or near a State Responsibility Area or lands classified as very high fire hazard severity zones. No impact would occur.

(d) No Impact. The Project is not located in or near a State Responsibility Area or lands classified as very high fire hazard severity zones. No impact would occur.

Mitigation Measures

No mitigation measures needed.

XXI. Mandatory Findings of Significance

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

Discussion

(a) Less Than Significant with Mitigation Incorporated. While the Project would result in potentially significant impacts on biological resources during construction, implementation of Valley Water standard BMPs, VHP Aquatic AMMs, and the mitigation measures proposed in this Mitigated Negative Declaration would ensure that the Project would not substantially degrade the quality of the environment; substantially reduce the habitat, population, or range of a plant or animal species; cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community; or reduce the number or restrict the range or a rare or endangered plant or animal.

The Project would not result in significant impacts on cultural resources given the extent of past ground disturbance and earthmoving activities at the Project Site, and depth to native soils, which is several feet beyond the maximum depth of excavation that would occur with implementation of the Project.

With implementation of the Valley Water standard BMPs, Aquatic AMMs, and mitigation measures identified in this Mitigated Negative Declaration, construction-related impacts on biological resources and historic resources would be less than significant.

No impact to biological resources or historic resources would occur during Project operations.

(b) Less Than Significant Impact. As defined by Section 15344(b) of the CEQA Guidelines "the change in the environment which results from the incremental impact of the Project when added to other closely related past, present, and reasonably foreseeable future projects. Cumulative impacts can result from individually minor but collectively significant projects taking place over a period of time." In addition to Project-specific impacts, this evaluation considered the Project's potential for incremental effects that are cumulatively considerable.

While the above analysis finds that the Project, unmitigated, would result in potentially significant impacts to air quality, hazardous materials, biological resources, and noise, the prescribed mitigation measures would reduce the Project impacts to these environmental resources to a level of less-than-significant and to a level where the Project's contribution to a cumulative impact would not be cumulatively considerable.

The analysis in this report indicates that implementation of Valley Water standard BMPs, Aquatic AMMs, and mitigation measures would ensure the Project's direct and indirect impacts are less than significant. Project implementation would not contribute to cumulative impacts. The impact would be less than significant.

(c) Less Than Significant with Mitigation Incorporated. While the Project could result in adverse impacts related to air quality, noise, and hazardous materials, implementation of the mitigation measures prescribed in this Mitigated Negative Declaration would reduce the air quality, noise, and hazardous materials impacts to a less-than-significant level. The Project would not change existing land uses nor increase the intensity of existing land uses. The Project's potential impacts on human beings would be temporary and limited to the construction period. The long-term effects of the Project on humans would be beneficial, as the Project would enable Valley Water to meet the anticipated future demand for treated water, based on the projected growth in the adopted General Plans of the local jurisdictions. The impact would be less than significant with mitigation incorporated.

Section 4. **Report Preparation**

This section lists those individuals who contributed to the preparation of this Mitigated Negative Declaration and supporting technical reports.

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Appendix A.
Air Quality and Greenhouse Gas Emissions Technical Report

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Air Quality Technical Report for the

Valley Water Vasona Pumping Plant Upgrades

PREPARED BY:

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October 23, 2024

Table of Contents

1.0 INTRODUCTION

This document presents the results of an air quality analysis prepared for the Santa Clara Valley Water District (Valley Water) Vasona Pumping Plant Upgrades (project). This document provides an overview of the existing air quality conditions at the project site, the air quality regulatory framework, and an analysis of potential air quality impacts that would result from implementation of the project. Other issues related to air emissions covered in this document include the assessment of emissions related to air quality health impacts (health risk assessment or HRA). Issues related to climate change and greenhouse gas (GHG) emissions are also included.

The supporting information, methodology, and assumptions used in the construction air emissions inventory, operational air emissions inventory, and health risk assessment are provided in:

- **Attachment A: Construction and Operational Emissions Inventory Supporting Information**
- **Attachment B: Health Risk Assessment Methodology, Assumptions, and Detailed Results**

The HRA focuses on health impacts on existing residences from emissions of toxic air contaminants (TAC)[1] such as diesel particulate matter (DPM)[2] from diesel equipment and haul truck emissions associated with the project construction activities and operation of the diesel standby generator. The HRA was conducted to determine the health impacts, in terms of excess cancer risk and non-cancer hazards, using the significance levels identified by the Bay Area Air Quality Management District (BAAQMD)'s *CEQA Air Quality Guidelines*.[3] The project is located in the San Francisco Bay Area Air Basin (SFBAAB). In accordance with the BAAQMD *CEQA Air Quality Guidelines*, the HRA also evaluated concentrations of particulate matter equal to or less than 2.5 micrometers (fine particulate or $PM_{2.5}$ as combustion exhaust and fugitive dust). The HRA was prepared based on the California Office of Environmental Health Hazard Assessment (OEHHA)'s *Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments.*[4]

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[1] Toxic air contaminants are a broad class of compounds known to cause morbidity or mortality. TAC are found in ambient air, especially in urban areas, and are caused by industry, agriculture, fuel combustion, and commercial operations (e.g., gasoline service stations, dry cleaners). TAC are typically found in low concentrations, even near their source (e.g., diesel particulate matter near a freeway). Because chronic exposure can result in adverse health effects, TAC are regulated at the regional, state, and federal level.

[2] In 1998, the California Air Resources Board classified diesel particulate matter as a toxic air contaminant, citing its potential to cause cancer and other health problems. The US Environmental Protection Agency concluded that long-term exposure to diesel engine exhaust is likely to pose a lung cancer hazard to humans and can also contribute to other acute and chronic health effects.

[3] Bay Area Air Quality Management District, *CEQA Air Quality Guidelines*, April 20, 2023, https://www.baaqmd.gov/plans-and-climate/california-environmental-quality-act-ceqa/updated-ceqa-guidelines

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2.0 PROJECT OVERVIEW

Valley Water proposes to replace two 400 horsepower (hp) centrifugal pumps and two 200 hp horizontal centrifugal pumps with four horizontal split-case 600 hp pumps.[5] The new pumps would be equipped with variable frequency drives to improve energy efficiency. To support the new pumps, existing valves, flow meters, motor controls, electrical power distribution and control systems, and telemetry equipment would be replaced and upgraded. An existing 50 kilowatts (kW) (67 hp) natural gas standby generator located inside the Pump Building would be replaced by a 100 kW (134 hp) natural gas standby generator at the same location and connected to the same PG&E natural gas line. A new 1,250 kW (1,676 hp) diesel standby generator would also be installed. **Figure 1: Project Location Map** shows the project location map including staging areas. **Figure 2: Existing and Proposed Site Map** shows the location of project features including the standby generators.

The project would replace key electrical, mechanical, and control systems equipment and install supporting systems such concrete equipment pads, equipment enclosures, overhead electrical busways, interconnecting electrical conduit, wire, and piping (both underground and above-grade). Installation of three new equipment enclosures is proposed for the standby generator, main switchboard, and controls and will be located on the south side of the existing Pump House, below the height of the existing Pump House, to provide a visual and noise buffer between the project and the existing neighborhood to the north. Trenching is needed between these three new structures and the existing Pump House for electrical conduit and piping. PG&E's transformer serving the project site will be replaced with a new utility transformer east of the existing Pump House and is not expected to result in disruption of electrical service within the neighborhood. No work is proposed within the creek or pond.

Construction in the pump station yard includes replacement of five valves within existing vaults, installation of a generator, switchgear, electrical building on concrete pads, trenching for duct banks between equipment, and replacement of two flow meters in existing vaults. There will be a new service entrance and switchboard.

Project construction is anticipated to begin early January of 2025 and be completed by the end of June of 2026 (approximately 18 months). An estimated 254 cubic yards of soil requiring offsite disposal would be generated during construction, and 210 cubic yards of fill would be imported to the site. Project construction would result in a total of 0.153 acres (approximately 6,659 square feet) of ground disturbance at the project site. Implementation of the project would result in the creation and/or replacement of 5,175 square feet of impervious surfaces, resulting in an 869-square-foot net increase in impervious surfaces.

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[5] An increase from 1,200 hp of pumps to 2,400 hp of pumps.

Figure 1: Project Location Map

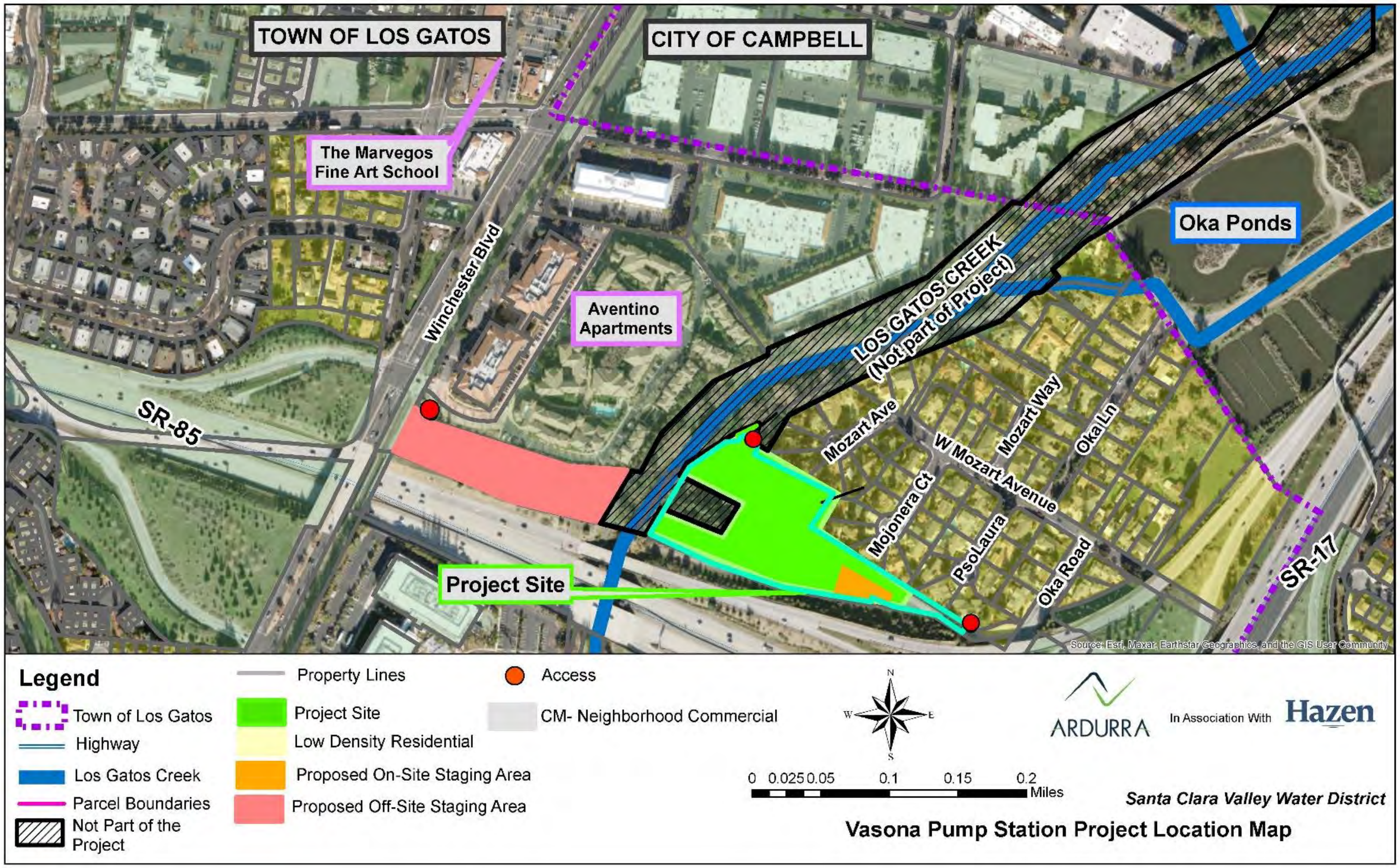
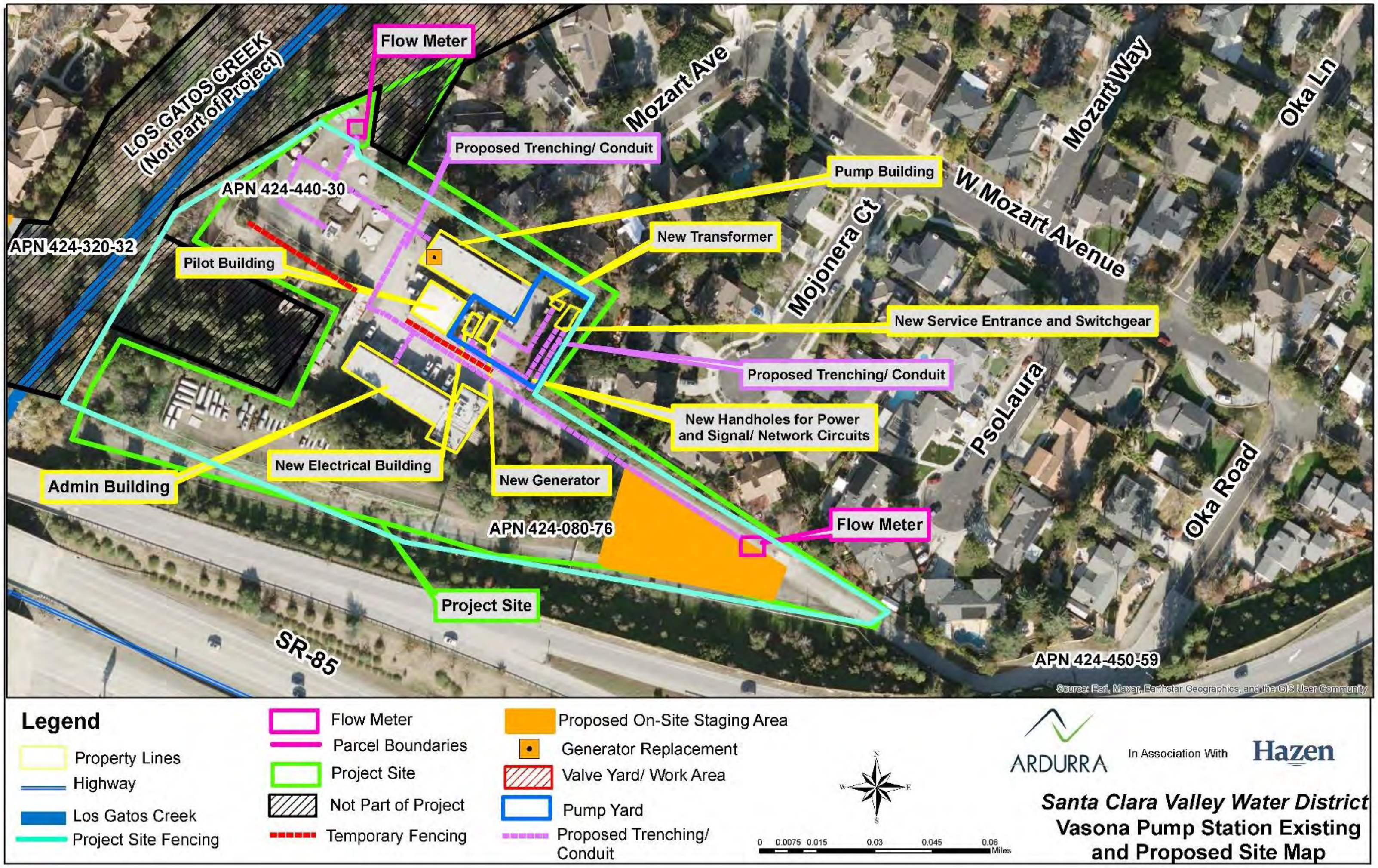


Figure 2: Existing and Proposed Site Map



3.0 ANALYSIS METHODOLOGY

Intermittent (short-term construction emissions that occur from activities, such as removal of structures, site-grading, and construction of structures) and long-term air quality impacts related to the operation of the project were evaluated. The analysis focuses on daily and annual emissions from construction and operational (area, mobile, stationary, and fugitive sources) activities. The air quality analysis is consistent with the methods described in the BAAQMD *CEQA Air Quality Guidelines*. Mitigation measures are presented to reduce impacts to less than significant, where applicable.

The air quality analysis includes a review of criteria pollutant[6] emissions such as carbon monoxide (CO), nitrogen oxides (NO_x), sulfur dioxide (SO_2), volatile organic compounds (VOC) as reactive organic gases (ROG), particulate matter less than 10 micrometers (coarse particulate or PM_{10}), and particulate matter less than 2.5 micrometers (fine particulate or $PM_{2.5}$).

Regulatory models used to estimate air quality impacts include:

- California Air Pollution Officers Association (CAPCOA) CalEEMod (California Emissions Estimator Model Version 2022.1)[7] is a statewide land use emissions computer model designed to provide a uniform platform for government agencies, land use planners, and environmental professionals to quantify potential criteria pollutant and GHG emissions associated with both construction and operations from a variety of land use projects. The model quantifies direct emissions from construction and operation activities (including vehicle use), as well as indirect emissions, such as GHG emissions from energy use, solid waste disposal, vegetation planting and/or removal, and water use.
- AERMOD (American Meteorological Society/USEPA Regulatory Model, Version 23132) is an atmospheric dispersion model which can simulate point, area, volume, and line emissions sources and has the capability to include simple, intermediate, and complex terrain along with meteorological conditions and multiple receptor locations.[8,9] AERMOD is commonly executed to yield 1-hour maximum and annual average concentrations (in $\mu g/m^3$) at each receptor.

4.0 EXISTING CONDITIONS

The project site is located within the San Francisco Bay Area Air Basin (Air Basin), which encompasses Alameda, Contra Costa, Santa Clara, San Francisco, San Mateo, Marin, and Napa Counties, and the

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[6] Criteria air pollutants refer to those air pollutants for which the USEPA and CARB has established National Ambient Air Quality Standards and California Ambient Air Quality Standards under the Federal Clean Air Act.

[7] California Air Pollution Officers Association, *California Emissions Estimator Model User Guide Version 2022.1*, April 2022, http://www.caleemod.com/

[8] US Environmental Protection Agency, Preferred/Recommended Models, *AERMOD Modeling System*, https://www.epa.gov/scram/air-quality-dispersion-modeling-preferred-and-recommended-models#aermod

[9] Title 40 CFR Part 51, *Revision to the Guideline on Air Quality Models: Adoption of a Preferred General Purpose (Flat and Complex Terrain) Dispersion Model and Other Revisions; Final Rule,* https://www.epa.gov/sites/default/files/2020-09/documents/appw_17.pdf

southern portions of Solano and Sonoma Counties. The Air Basin is characterized by complex terrain which distorts normal wind flow patterns, consisting of coastal mountain ranges, inland valleys, and bays.

Meteorological Conditions

Air quality is affected by the rate, amount, and location of pollutant emissions and the associated meteorological conditions that influence pollutant movement and dispersal. Atmospheric conditions, including wind speed, wind direction, stability, and air temperature, in combination with local surface topography (i.e., geographic features such as mountains, valleys, and San Francisco Bay), determine the effect of air pollutant emissions on local air quality.

The climate of the Air Basin, including San Jose and Los Gatos, is a Mediterranean-type climate characterized by warm, dry summers and mild, wet winters. The climate is determined largely by a high-pressure system that is often present over the eastern Pacific Ocean off the West Coast of North America. In winter, the Pacific high-pressure system shifts southward, allowing storms to pass through the region. During summer and fall, air emissions generated within the Bay Area can combine with abundant sunshine under the restraining influences of topography and subsidence inversions to create conditions that are favorable to the formation of photochemical pollutants, such as ozone and secondary particulates, such as sulfates and nitrates.

The project site lies in the Santa Clara Valley climatological sub-region of the Bay Area. The northwest-southeast oriented Santa Clara Valley is 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. Temperatures are warm in summer, under mostly clear skies, although a relatively large diurnal range results in cool nights. Winter temperatures are mild, except for very cool but generally frostless mornings. At the northern end of the Santa Clara Valley, the San Jose Airport mean maximum temperatures range from the high 70's to the low 80's during the summer to the high 50's-low 60's during the winter, and mean minimum temperatures range from the high 50's during the summer to the low 40's during the winter.

The wind patterns in the Santa Clara Valley are influenced greatly by the terrain, resulting in a prevailing flow roughly parallel to the Valley's northwest-southeast axis with a north-northwesterly sea breeze 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. In summer a convergence zone is sometimes observed in the southern end of the Valley between Gilroy and Morgan Hill when air flowing from the Monterey Bay through the Pajaro Gap gets channeled northward into the south end of the Santa Clara Valley and meets with the prevailing north-northwest winds. Wind speeds are greatest in the spring and summer, and least in the fall and winter. seasons. Nighttime and early morning hours have light winds and are frequently calm in all seasons, while summer afternoon and evenings are quite breezy. Strong winds are rare, coming only with an occasional winter storm.[10]

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[10] Bay Area Air Quality Management District, *Climate, Physiography, and Air Pollution Potential – Bay Area and Its Subregions*.

Criteria Air Pollutants

The following provides a summary of the potential health and welfare effects and typical sources of each of the criteria air pollutants and other air pollutants.

Ozone

Ozone (or O_3) is a respiratory irritant and an oxidant that increases susceptibility to respiratory infections and that can cause substantial damage to vegetation and other materials. O_3 is not emitted directly into the atmosphere but is a secondary air pollutant produced in the atmosphere through a complex series of photochemical reactions involving VOC and NO_x. VOC and NO_x are known as precursor compounds for O_3. Substantial ozone production generally requires O_3 precursors to be present in a stable atmosphere with strong sunlight for approximately three hours. O_3 is a regional air pollutant because it is not emitted directly by sources but is formed downwind of sources of VOC and NO_x under the influence of wind and sunlight. O_3 concentrations tend to be higher in the late spring, summer, and fall, when long sunny days combine with regional air subsidence inversions to create conditions conducive to the formation and accumulation of secondary photochemical compounds.

Carbon Monoxide

CO is a nonreactive pollutant that is a product of incomplete combustion of organic material, and is mostly associated with motor vehicle traffic, and in wintertime, with wood–burning stoves and fireplaces. 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 its oxygen-carrying capacity, resulting 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. CO measurements and modeling were important in the early 1980's when CO levels were regularly exceeded throughout California, but in more recent years, CO measurements and modeling are not a priority in most California air districts due to the retirement of older vehicles, fewer emissions from new vehicles, and improvements to fuels.

Nitrogen Oxides

When combustion temperatures are extremely high, as in aircraft, truck and automobile engines, atmospheric nitrogen combines with oxygen to form various oxides of nitrogen. Nitric oxide (NO) and nitrogen dioxide (NO_2) are the most significant air pollutants generally referred to as NO_x. Nitric oxide is a colorless and odorless gas that is relatively harmless to humans, quickly converts to NO_2 and can be measured. Nitrogen dioxide has been found to be a lung irritant capable of producing pulmonary edema. Inhaling NO_2 can lead to respiratory illnesses such as bronchitis and pneumonia.

Volatile Organic Compounds

VOC means any compound of carbon, excluding carbon monoxide, carbon dioxide (CO_2), carbonic acid, metallic carbides or carbonates, and ammonium carbonate, which participates in atmospheric photochemical reactions and thus, is a precursor of ozone formation. VOC includes a variety of chemicals, some of which may have short- and long-term adverse health effects. VOC are emitted by a wide array of products numbering in the thousands. Examples include paints and lacquers, paint strippers, cleaning supplies, building materials and furnishings, as well as fuel storage and use.

VOC can cause eye, nose, and throat irritation; headaches, loss of coordination, nausea; and damage to liver, kidney, and central nervous system. Some organics can cause cancer in animals; some are suspected or known to cause cancer in humans. The ability of organic chemicals to cause health effects varies greatly from those that are highly toxic, to those with no known health effect. As with other pollutants, the extent and nature of the health effect will depend on many factors including level of exposure and length of time exposed. Eye and respiratory tract irritation, headaches, dizziness, visual disorders, and memory impairment are among the immediate symptoms that some people have experienced soon after exposure to some organics.

Particulate Matter

PM_{10} and $PM_{2.5}$ consist of airborne particles that measure 10 micrometers or less in diameter and 2.5 micrometers or less in diameter, respectively. PM_{10} and $PM_{2.5}$ represent fractions of particulate matter that can be inhaled into the air passages and the lungs, causing adverse health effects. Particulate matter in the atmosphere results from many kinds of dust- and fume-producing industrial and agricultural operations, fuel combustion, wood burning stoves and fireplaces, and atmospheric photochemical reactions. Some sources of particulate matter, such as demolition, construction activities and mining, are more local in nature, while others such as vehicular traffic and wood burning stoves and fireplaces, 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. Particulates can also damage materials and reduce visibility. Dust comprised of large particles (diameter greater than 10 micrometers) settles out rapidly and is easily filtered by human breathing passages. This dust is of concern more as a soiling nuisance rather than a health hazard. The remaining fractions, PM_{10} and $PM_{2.5}$, are a health concern particularly at levels above the federal and California ambient air quality standards. $PM_{2.5}$ (including diesel exhaust particles) is thought to have greater effects on health, because these particles are so small and thus penetrate to the deepest parts of the lungs.

Acute and chronic health effects associated with high particulate levels include the aggravation of chronic respiratory diseases, heart and lung disease, coughing, bronchitis, and respiratory illnesses in children. Mortality studies since the 1990s have shown a statistically significant direct association between mortality (premature deaths) and daily concentrations of particulate matter in the air. Despite important gaps in scientific knowledge and continued reasons for some skepticism, a comprehensive evaluation of the research findings provides persuasive evidence that exposure to fine particulate air pollution has adverse effects on cardiopulmonary health.

Sulfur Dioxide

SO_2 is a combustion product of sulfur or sulfur–containing fuels such as coal and diesel. SO_2 is also a precursor to the formation of atmospheric sulfate and particulate matter and contributes to potential atmospheric sulfuric acid formation that could precipitate downwind as acid rain.

Lead

Lead has a range of adverse neurotoxin health effects and was released into the atmosphere via leaded gasoline products. The phase-out of leaded gasoline in California has resulted in dramatically decreased levels of atmospheric lead. The highest concentrations of lead in air are generally found near lead smelters and general aviation airports; where piston aircraft use leaded fuel. Other stationary sources that generate lead emissions include waste incinerators, utilities, and lead-acid battery manufacturers.

Sulfates

Sulfates are the fully oxidized ionic form of sulfur produced when sulfur dioxide is fully oxidized in the atmosphere. Sulfates are produced by emissions from automobiles, power plants, and industrial activity, and contribute to general atmospheric haziness. Typical health effects associated with exposure to sulfates include respiratory illness and an increased risk of cardio-pulmonary disease.

Vinyl Chloride

Vinyl chloride is an artificially created colorless gas with a mild, slightly sweet odor. The gas is used in the manufacture of vinyl products, including polyvinyl chloride plastic. Vinyl chloride emissions are produced from the vinyl manufacturing process as well as from the breakdown of vinyl products in landfills and hazardous waste sites. The health effects associated with vinyl chloride include dizziness, headaches, and drowsiness from short-term exposure, and liver damage and cancer resulting from long-term exposure.

Hydrogen Sulfide

Hydrogen sulfide (H_2S) is a naturally occurring, colorless gas that at low concentrations produces a distinctive rotten egg odor. At higher concentrations, olfactory fatigue prevents detection of odor. The gas is produced through the bacteriological breakdown of organic materials as well as during oil and gas production and geothermal power generation. Health effects associated with H_2S include exposure to a disagreeable odor, coughing, irritation to eyes, and impairment of the respiratory system.

Visibility Reducing Particles

Visibility reducing particles are particulate matter composed of many different substances that are suspended in the atmosphere and contribute to haze and diminished visibility.

Ambient Air Quality Standards

Regulation of air pollutants is achieved through both national and state ambient air quality standards and emissions limits for individual sources. Regulations implementing the federal Clean Air Act and its subsequent amendments established National Ambient Air Quality Standards (NAAQS) for the six criteria pollutants. California has adopted more stringent California Ambient Air Quality Standards (CAAQS) for most of the criteria air pollutants. In addition, California has established CAAQS for sulfates, hydrogen sulfide, vinyl chloride, and visibility-reducing particles. There is considerable difference between state and federal standards in California.

The NAAQS and CAAQS are intended to protect public health and welfare, and they incorporate an adequate margin of safety. They are designed to protect those segments of the public most susceptible to respiratory distress, known as sensitive receptors, including asthmatics, 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.

Under amendments to the federal Clean Air Act, USEPA has classified air basins or portions thereof, as either “attainment” or “nonattainment” for each criteria air pollutant, based on whether or not the NAAQS have been achieved. The California Clean Air Act, which is patterned after the federal Clean Air Act, also requires areas to be designated as “attainment” or “nonattainment” for the CAAQS. Thus, areas in California have two sets of attainment/nonattainment designations: one set with respect to the NAAQS and one set with respect to the CAAQS.

Toxic Air Contaminants

TAC are regulated under both state and federal laws. Federal laws use the term “Hazardous Air Pollutants” (HAP) to refer to the same types of compounds that are referred to as TAC under state law. Both terms encompass essentially the same compounds. Under the 1990 Federal Clean Air Act Amendments, 189 substances are regulated as HAP.

With respect to state law, in 1983 the California legislature adopted Assembly Bill 1807 (AB 1807), which establishes a process for identifying TAC and provides the authority for developing retrofit air toxics control measures on a statewide basis. Air toxics in California may also be regulated because of another state law, the Air Toxics “Hot Spots” Information and Assessment Act of 1987, or Assembly Bill 2588 (AB 2588). Under AB 2588, TAC from individual facilities must be quantified and reported to the local air pollution control agency. The facilities are then prioritized by the local agencies based on the quantity and toxicity of these emissions, and on their proximity to areas where the public may be exposed. In establishing priorities, the air districts are to consider the potency, toxicity, quantity, and volume of hazardous materials released from the facility, the proximity of the facility to potential receptors, and any other factors that the air district determines may indicate that the facility may pose a significant risk. High priority facilities are required to perform a Health Risk Screening Assessment, and if specific risk thresholds are exceeded, they are required to communicate the results to the public in the form of notices and public meetings. Depending on the health risk levels, emitting facilities can be required to implement varying levels of risk reduction measures.

Asbestos is listed as a TAC by the CARB and as a HAP by the USEPA. Asbestos occurs naturally in mineral formations and crushing or breaking these rocks, through construction or other means, can release asbestiform fibers into the air. Asbestos emissions can result from the sale or use of asbestos-containing materials, road surfacing with such materials, grading activities, and surface mining. The risk of disease is dependent upon the intensity and duration of exposure. When inhaled, asbestos fibers may remain in the lungs and with time may be linked to such diseases as asbestosis, lung cancer, and mesothelioma. Naturally occurring asbestos is present in Santa Clara County. The nearest likely locations of naturally occurring asbestos, as identified in the General Location Guide for Ultramafic Rocks in California prepared by the California Division of Mines and Geology, is located at New Almaden Mine, approximately nine miles southeast of the project site. Due to the distance to the nearest natural occurrences of asbestos, the project site is not likely to contain asbestos.

Regional Clean Air Plan

BAAQMD adopted its *Bay Area 2010 Clean Air Plan* (CAP)[11] in accordance with the requirements of the California Clean Air Act (CCAA) to implement all feasible measures to reduce ozone; provide a control strategy to reduce ozone, particulate matter, air toxics, and GHG emissions in a single, integrated plan; and establish emission control measures to be adopted or implemented in the 2010 through 2012 timeframe.[12] The primary goals of the 2010 Bay Area CAP are to:

- Attain air quality standards;
- Reduce population exposure and protecting public health in the Bay Area; and
- Reduce GHG emissions and protect the climate.

On April 20, 2017, BAAQMD released the *2017 Bay Area Clean Air Plan*.[13] The 2017 Clean Air Plan/Regional Climate Protection Strategy (CAP/RCPS) provides a roadmap for BAAQMD's efforts over the next few years to reduce air pollution and protect public health and the global climate. Measures of the 2017 CAP addressing the transportation sector are in direct support of *Plan Bay Area 2040*, which was prepared by the Association of Bay Area Governments and the Metropolitan Transportation Commission and includes the region's Sustainable Communities Strategy and the 2040 Regional Transportation Plan.

When a public agency contemplates approving a project where an air quality plan consistency determination is required, BAAQMD recommends that the agency analyze the project with respect to the following questions: (1) Does the project support the primary goals of the air quality plan; (2) Does the project include applicable control measures from the air quality plan; and (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 air quality plans prepared for the Bay Area.

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[11] Bay Area Air Quality Management District, *Bay Area 2010 Clean Air Plan*. September 15, 2010, http://www.baaqmd.gov/plans-and-climate/air-quality-plans/current-plans

[12] In 2015, the BAAQMD initiated an update to the 2010 CAP. On February 28, 2014, the District held a public meeting to report progress on implementing the control measures in the 2010 CAP, to solicit ideas and strategies to further reduce ozone precursors, particulate matter, toxic air contaminants, and greenhouse gases, and to seek input on innovative strategies to reduce greenhouse gases, mechanisms for tracking progress in reducing GHG, and how the Air District may further support actions to reduce GHG.

[13] Bay Area Air Quality Management District, *2017 Clean Air Plan*, April 20, 2017, http://www.baaqmd.gov/~/media/files/planning-and-research/plans/2017-clean-air-plan/attachment-a_-proposed-final-cap-vol-1-pdf.pdf?la=en

Any project that would not support the 2017 CAP goals would not be considered consistent with the 2017 CAP. The recommended measure for determining project support of these goals is consistency with BAAQMD CEQA thresholds of significance. As presented in the preceding and subsequent impact discussions, the project would not exceed the BAAQMD significance thresholds; therefore, the project would support the primary goals of the 2017 CAP and would not hinder implementation of any of the CAP control measures.

Highlights of the 2017 Clean Air Plan control strategy include:

- Limit Combustion: Develop a region-wide strategy to improve fossil fuel combustion efficiency at industrial facilities, beginning with the three largest sources of industrial emissions: oil refineries, power plants, and cement plants.
- Stop Methane Leaks: Reduce methane emissions from landfills, and oil and natural gas production and distribution.
- Reduce Exposure to Toxics: Reduce emissions of toxic air contaminants by adopting more stringent limits and methods for evaluating toxic risks at existing and new facilities.
- Put a Price on Driving: Implement pricing measures to reduce travel demand.
- Advance Electric Vehicles: Accelerate the widespread adoption of electric vehicles.
- Promote Clean Fuels: Promote the use of clean fuels and low or zero carbon technologies in trucks and heavy-duty vehicles.
- Accelerate Low-Carbon Buildings: Expand the production of low-carbon, renewable energy by promoting on-site technologies such as rooftop solar and ground-source heat pumps.
- Support More Energy Choices: Support of community choice energy programs throughout the Bay Area.
- Make Buildings More Efficient: Promote energy efficiency in both new and existing buildings.
- Make Space and Water Heating Cleaner: Promote the switch from natural gas to electricity for space and water heating in Bay Area buildings.

Local Air Quality

The BAAQMD maintains a network of monitoring stations within the Air Basin that monitor air quality and compliance with applicable ambient standards. Two monitoring stations are located near the project site: 158 East Jackson Street (approximately five miles southwest of the project site) and 1007 Knox Avenue (approximately four miles south-southwest of the project site); both monitoring sites are in San Jose. **Table 1: Air Quality Data Summary (2021 - 2023)** summarizes the most recent three years of data (2021 through 2023) from the BAAQMD's 1007 Knox Avenue monitoring station for CO, NO_2, and $PM_{2.5}$ and 158 East Jackson Street monitoring station for ozone, SO_2, and PM_{10} (although not available for 2023).

Table 1: Air Quality Data Summary (2021 - 2023)

Pollutant	Monitoring Data by Year			
	Standard[a]	2021	2022	2023
Ozone				
Highest 1 Hour Average (ppm)[b]	0.090/-	**0.098**	**0.090**	0.087
Highest 8 Hour Average (ppm)[b]	0.070	**0.084**	**0.074**	0.068
Nitrogen Dioxide				
Highest 1 Hour Average (ppm)[b]	0.180/0.100	0.0485	0.0508	0.0482
Annual Average (μg/m^3)[b]	0.030/0.053	0.0120	0.0134	0.0113
Carbon Monoxide				
Highest 1 Hour Average (ppm)[b]	20/35	1.9	1.8	2.2
Highest 8 Hour Average (ppm)[b]	9/9	1.5	1.5	1.3
Particulate Matter (PM_{10})				
Highest 24-Hour Average (μg/m^3)[b]	50/150	45.0	44.0	NA
Annual Average (μg/m^3)[b]	20/-	19.7	**20.8**	NA
Particulate Matter ($PM_{2.5}$)				
Highest 24-Hour Average (μg/m^3)[b]	-/35	**45.0**	34.7	**46.2**
Annual Average (μg/m^3)[b]	12/9	**10.9**	8.74	6.50
Sulfur Dioxide				
Highest 1 Hour Average (ppm)[b]	0.25/0.75	0.0018	0.002	0.036
Highest 3 Hour Average (ppm)[b]	0.04/0.14	0.0015	0.0016	0.012

NOTES: Values in **bold** are in excess of at least one applicable standard.

a. Generally, state standards/national standards are not to be exceeded more than once per year.
b. ppm = parts per million; μg/m^3 = micrograms per cubic meter.

Source: United States Environmental Protection Agency, AirData, https://www.epa.gov/outdoor-air-quality-data/interactive-map-air-quality-monitors

The state and national 8-hour ozone standards were exceeded in 2021 and 2022. The annual PM_{10} standard was exceeded in 2022. The 24-hour $PM_{2.5}$ standard was exceeded in 2021 and 2023. PM_{10} and $PM_{2.5}$ concentrations may have been adversely affected by wildfires. No other standards were exceeded during the three-year period.

The Bay Area is currently designated “nonattainment” for state and national (1-hour and 8-hour) ozone standards, for the state PM_{10} standards, and for the state and national (annual average and 24-hour) $PM_{2.5}$ standards. The Bay Area is designated “attainment” or “unclassifiable” with respect to the other ambient air quality standards.

Community Air Risk Evaluation

The BAAQMD’s Community Air Risk Evaluation (CARE) program was initiated in 2004 to evaluate and reduce health risks associated with exposure to outdoor air toxics in the Bay Area. Based on findings of the latest report, DPM was found to account for approximately 85 percent of the cancer risk from airborne toxics. Carcinogenic compounds from gasoline-powered cars and light duty trucks were also identified as significant contributors: 1,3-butadiene contributed four percent of the cancer risk-weighted emissions, and benzene contributed three percent. Collectively, five compounds—diesel PM, 1,3-butadiene, benzene, formaldehyde, and acetaldehyde—were found to be responsible for more than 90 percent of the cancer risk attributed to emissions. All these compounds are associated with emissions from internal combustion engines. The most important sources of cancer risk-weighted emissions were combustion-related sources of DPM, including on-road mobile sources (31 percent), construction equipment (29 percent), and ships and harbor craft (13 percent). A 75 percent reduction in DPM was predicted between 2005 and 2015 when the inventory accounted for CARB's diesel regulations. Overall, cancer risk from TAC dropped by more than 50 percent between 2005 and 2015, when emissions inputs accounted for state diesel regulations and other reductions.[14]

Modeled cancer risks from TAC were highest near sources of DPM: near core urban areas, along major roadways and freeways, and near maritime shipping terminals. Peak modeled risks were found to be located east of San Francisco, near West Oakland, and the maritime Port of Oakland. BAAQMD has identified seven impacted communities in the Bay Area:

- Western Contra Costa County and the cities of Richmond and San Pablo (west of I-80).
- Western Alameda County along the Interstate 880 corridor and the cities of Berkeley, Alameda, Oakland, and Hayward.
- San Jose.
- Eastern side of San Francisco.
- Concord.
- Vallejo.
- Pittsburgh and Antioch.

The project is within the Town of Los Gatos is not part of the seven CARE program impacted communities in the Bay Area.[15] The health impacts in the Bay Area, as determined both by pollution levels and by existing health vulnerabilities in a community, are approximately 160 cancer risk per million persons. For Los Gatos, the health impact is approximately 100 cancer risk per million persons.[16]

Addressing Sources of Air Pollutants in Community Planning

In May of 2016, the BAAQMD published *Planning Healthy Places: A Guidebook for Addressing Local Sources of Air Pollutants in Community Planning*.[17] The BAAQMD's primary goal in providing the *Guidebook* is to support and promote infill development, which is important to reducing vehicle miles

[14] Bay Area Air Quality Management District, *Improving Air Quality & Health in Bay Area Communities, Community Air Risk Program Retrospective & Path Forward (2004 – 2013)*, April 2014, http://www.baaqmd.gov/~/media/Files/Planning%20and%20Research/CARE%20Program/Documents/CARE_Retrospective_April2014.ashx?la=en

[15] Community Air Risk Evaluation Program, *Identifying Areas with Cumulative Impacts from Air Pollution in the San Francisco Bay Area*, March 2014.

[16] Bay Area Air Quality Management District, *Identifying Areas with Cumulative Impacts from Air Pollution in the San Francisco Bay Area*, March 2014.

[17] Bay Area Air Quality Management District, *Planning Healthy Places: A Guidebook for Addressing Local Sources of Air Pollutants in Community Planning*, May 8016, https://www.baaqmd.gov/~/media/files/planning-and-research/planning-healthy-places/php_may20_2016-pdf.pdf?la=en

traveled and the associated air emissions, while minimizing air pollution exposure for existing and future residents. The *Guidebook* provides developers and planners with the information and tools needed to create health-protective communities.

The *Guidebook* recommends Best Practices to Reduce Emissions and Reduce Exposure to Local Air Pollution. Implementing as many Best Practices to Reduce Emissions as is feasible will reduce potential health risks to the greatest extent. The *Guidebook* also lists examples of a variety of strategies to reduce exposure to, and emissions of, air pollution, including the adoption of air quality-specific ordinances, standard conditions of approval, and incorporation of policies into general plans and other planning documents. The BAAQMD recommends implementing all best practices to reduce exposure that are feasible and applicable to a project in areas that are likely to experience elevated levels of air pollution. To reduce exposure to pollutants, the *Guidebook* recommends practices like installing indoor air filtration systems, planting dense vegetation, implementing project design which provides a buffer between sensitive receptors and emission source, and developing alternative truck routes.

The *Guidebook* provides an interactive map of the Bay Area showing areas with estimated elevated levels of fine particulates and/or toxic air contaminants. The interactive map shows locations where further study is needed, such as a detailed health risk assessment; specifically, locations next to major roads and freeways and large industrial sites, as well as the downtown districts of cities.

Nearby Sensitive Receptors

Land uses such as schools, children’s daycare centers, hospitals, and convalescent homes are considered to be more sensitive than the general public to poor air quality because the population groups associated with these uses have increased susceptibility to respiratory distress. Persons engaged in strenuous work or exercise also have increased sensitivity to poor air quality. The CARB has identified the following people as most likely to be affected by air pollution: children less than 14 years of age, the elderly over 65 years of age, athletes, and those with cardiovascular and chronic respiratory diseases. These groups are classified as sensitive population groups.

Residential areas are considered more sensitive to air quality conditions than commercial and industrial areas, because people generally spend longer periods of time at their residences, resulting in greater exposure to ambient air quality conditions. Recreational uses are also considered sensitive, due to the greater exposure to ambient air quality conditions and because the presence of pollution detracts from the recreational experience. According to the BAAQMD, workers are not considered sensitive receptors because all employers must follow regulations set forth by the Occupation Safety and Health Administration to ensure the health and well-being of their employees.

BAAQMD considers the relevant zone of influence for an assessment of air quality health risks to be within 1,000 feet of a project site. Surrounding land uses consist of single-family and multi-family residential to the south, northwest, and northeast, and SR 85 to the south, and Los Gatos Creek to the north and west. **Attachment B: Health Risk Assessment Methodology, Assumptions, and Detailed Results** provides additional information of the nearby sensitive receptors. The nearest sensitive receptors to the Vasona Pump Station are the adjacent single-family residences at Mozart Avenue (40 feet away) and Mojonera

Court (40 feet away) and the multi-family residential units on the north side of Los Gatos Creek, adjacent to the off-site staging area (60 feet away).

According to the requirements under the California Public Resources Code, Division 13, Environmental Quality (§21000 – §21189.57), a project located within ¼ mile of a school that involve the construction or alteration of a facility that might reasonably be anticipated to emit hazardous air emissions, and that may impose a health or safety hazard to persons who would attend or would be employed at the school, must meet all requirements per CEQA Guidelines §15186 (b)(1)(2).[18] The lead agency must consult with the affected school district or districts regarding the potential impact of the project on the school and notify the affected school district(s) of the project in writing, not less than 30 days prior to approval or certification of the negative declaration or environmental impact report. There are no schools within ¼ mile of the project site.

Town of Los Gatos

Local jurisdictions, such as the Town of Los Gatos, have the authority and responsibility to reduce air pollution through its police power and decision-making authority. Specifically, the Town is responsible for the assessment and mitigation of air emissions resulting from its land use decisions. The Town is also responsible for the implementation of transportation control measures as outlined in the 2017 Bay Area Clean Air Plan. In accordance with CEQA requirements and the CEQA review process, the Town assesses the air quality impacts of new development projects, requires mitigation of potentially significant air quality impacts by conditioning discretionary permits, and monitors and enforces implementation of such mitigation.

The Environment and Sustainability Element of the current Town of Los Gatos General Plan establishes goals, policies, and actions to improve air quality in the Town.[19] These goals, policies, and actions include:

Goal ENV-12 To conserve the air resources of the Town and maintain and improve acceptable air quality in Los Gatos.

Policies

Policy ENV-12.1 Local land use decisions shall consider air quality goals as part of the environmental review process.

Policy ENV-12.2 Require consideration of alternatives to individual auto use whenever the environmental review document concludes that the traffic generated by a development project would result in adverse impacts from air and noise pollution.

Policy ENV-12.3 Require design criteria for site plans to reduce the effects of high air pollution concentrations associated with roadways by appropriate placement of structures, use of landscaping, and parking arrangements.

Policy ENV-12.4 Support BAAQMD, Metropolitan Transportation Commission (MTC), State, and federal planning efforts and programs aimed at reducing air pollution within the airshed.

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[18] 2019 CEQA Statutes and Guidelines, http://resources.ca.gov/ceqa/docs/2019_CEQA_Statutes_and_Guidelines.pdf
[19] Town of Los Gatos, 2040 General Plan, June 30, 2022, https://www.losgatosca.gov/2138/General-Plan

Policy ENV-12.5 Site plans shall be reviewed to include an assessment of the potential adverse impact from air pollution and recommend alternatives to reduce such impacts.

Policy ENV-12.6 Support MTC recommendations for reduction of auto pollutants.

Policy ENV-12.7 During construction, ensure all applicable best management practices are used in accordance with Bay Area Air Quality Management District (BAAQMD) standards to reduce emissions of criteria pollutants.

Policy ENV-12.8 Best Available Control Measures including compliance with California vehicle emissions standards shall be incorporated to reduce construction emission.

Policy ENV-12.9 For significant projects, require project proponents to prepare and implement a Construction Management Plan, which will include Best Available Control Measures, among other measures. Appropriate control measures will be determined on a project-by-project basis and should be specific to the pollutant for which the daily threshold is exceeded. Such control measures may include, but not be limited to:

a. Minimizing simultaneous operation of multiple construction equipment units.

b. Watering the construction area to minimize fugitive dust.

c. Requiring off-road diesel-powered vehicles used for construction to comply with California vehicle emissions standards.

d. Minimizing idling time by construction vehicles.

Actions

Action ENV-12.1 Study a ban on gardening equipment that may adversely affect air quality.

The 2040 General Plan was adopted in June of 2022. The Environment and Sustainability Element of the 2040 General Plan includes the following air quality related goals and policies.

Goal ENV-8 Improve the air quality in Los Gatos.

Policies

Policy ENV-8.1 Air Quality Standards. Federal, State, and regional air quality goals, policies, standards, and requirements shall be addressed during environmental review for local land use and development decisions. Applicable standards or requirements, if not already in the proposed plans, shall be incorporated as conditions of approval.

Policy ENV-8.2 Support Regional Efforts to Reduce Air Pollution. Coordinate with and support the Air District, MTC, State, and Federal planning efforts and programs aimed at reducing air pollution, including ongoing monitoring and management of major pollutants affecting Los Gatos and the region, with a particular focus on PM_{10} and $PM_{2.5}$ (Particulate Matter).

Policy ENV-8.3 Decrease Vehicle Miles Traveled (VMT). Require decreases to VMT whenever the environmental review document concludes that the traffic generated by a development project would result in adverse impacts from air and noise pollution. Decreases in VMT could be achieved through transportation demand management programs.

Policy ENV-8.4 Electric Vehicle Infrastructure. Require installation of electric vehicle charging stations as a ratio of total required parking for new and redeveloped commercial, multi-family, residential subdivision, and condominium projects.

Policy ENV-8.5 Education Programs to Reduce Particulate Emissions from Vehicles. Support education programs that promote the reduction of particulate emissions from vehicles, such as reducing idling time, as well as reducing overall VMT.

Policy ENV-8.6 Metropolitan Transportation Commission Recommendations. Support MTC recommendations for the reduction of auto pollutants including encouraging the use of clean, alternative energy sources for transportation, wherever practical.

5.0 THRESHOLDS OF SIGNIFICANCE

The significance of potential impacts was determined based on State CEQA Guidelines, Appendix G, and the BAAQMD *CEQA Air Quality Guidelines*. Using Appendix G evaluation thresholds, a project would be considered to have significant air quality impacts if it were to:

A. Conflict with or obstruct implementation of the applicable air quality plan;

B. Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is nonattainment under an applicable federal or state ambient air quality standard;

C. Expose sensitive receptors to substantial pollutant concentrations; or

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

The thresholds and methodologies from the BAAQMD's *CEQA Air Quality Guidelines* were used to evaluate the potential impacts of construction and operation of a project. The thresholds of significance applied to assess project-level air quality impacts are:

- Average daily construction exhaust emissions of 54 pounds per day of ROG, NO_x, or $PM_{2.5}$ or 82 pounds per day of PM_{10};
- Average daily operation emissions of 54 pounds per day of ROG, NO_x, or $PM_{2.5}$ or 82 pounds per day of PM_{10}; or result in maximum annual emissions of 10 tons per year of ROG, NO_x, or $PM_{2.5}$ or 15 tons per year of PM_{10};
- Exposure of persons by siting a new source or a new sensitive receptor to substantial levels of TAC resulting in (a) a cancer risk level greater than 10 in one million, (b) a noncancerous risk (chronic or acute) hazard index greater than 1.0, or (c) an increase of annual average $PM_{2.5}$ of greater than 0.3 micrograms per cubic meter ($\mu g/m^3$). For this threshold, sensitive receptors include residential uses, schools, parks, daycare centers, nursing homes, and medical centers; or

- Frequently and for a substantial duration, create or expose sensitive receptors to substantial objectionable odors affecting a substantial number of people.

Assessment of a significant cumulative impact if it would result in:

- Exposure of persons, by siting a new source or a new sensitive receptor, to substantial levels of TAC during either construction or operation resulting in (a) a cancer risk level greater than 100 in a million, (b) a noncancer risk (chronic or acute) hazard index greater than 10.0, or (c) annual average $PM_{2.5}$ of greater than 0.8 µg/m^3.

The BAAQMD air quality significance thresholds are found in **Table 2: BAAQMD Air Quality Significance Thresholds**.

Table 2: BAAQMD Air Quality Significance Thresholds

Pollutant	Construction Thresholds	Daily Operational Thresholds	Annual Operational Thresholds
Criteria Air Pollutants			
ROG	54	54	10
NOx	54	54	10
PM_{10}	82 (exhaust only)	82	15
$PM_{2.5}$	54 (exhaust only)	54	10
CO	NA	9.0 ppm (8-hour) and 20.0 ppm (1-hour)	
Fugitive Dust	Best Management Practices	None	
Project Health Risk and Hazards			
Excess Cancer Risk	10 per million		
Chronic Hazard Index	1.0		
Acute Hazard Index	1.0		
Incremental Annual Average $PM_{2.5}$	0.3 µg/m^3		
Cumulative Health Risk and Hazards			
Excess Cancer Risk	100 per million		
Chronic Hazard Index	10.0		
Acute Hazard Index	10.0		
Incremental Annual Average $PM_{2.5}$	0.8 µg/m^3		

SOURCE: Bay Area Air Quality Management District, Adopted Air Quality CEQA Thresholds of Significance – April 2023, https://www.baaqmd.gov/~/media/files/planning-and-research/ceqa/ceqa-guidelines-2022/ceqa-guidelines-chapter-3-thresholds_final_v2-pdf.pdf?rev=a976830cce0c4a6bb624b020f72d25b3&sc_lang=en

NOTES: For construction projects that require less than 1 year to complete, BAAQMD recommends that lead agencies annualize impacts over the scope of actual days that peak impacts would occur rather than over the full year. Additionally, for phased projects that results in concurrent construction and operational emissions, construction-related exhaust emissions should be combined with operational emissions for all phases where construction and operations overlap.

PM_{10}/$PM_{2.5}$ (fugitive dust) is also recognized to impact local communities. BAAQMD strongly recommends implementing all feasible fugitive dust BMPs when construction projects are located near sensitive communities, including schools, residential areas, or other sensitive land uses.

The BAAQMD's significance criteria for odors are subjective and are based on the number of odor complaints generated by a project. The BAAQMD significance threshold for odor impacts is five confirmed complaints per year averaged over three years.

For projects that are considered new sources of TAC or $PM_{2.5}$ (such as construction activity, stationary sources, industrial sources, or roadway projects), it is generally appropriate to use the project-level thresholds because the project-level threshold identifies project's incremental contribution to health impacts. Project impacts which are below the project-level thresholds would be presumed to contribute a less than significant impact to the cumulative condition. However, for projects that consist of new receptors (such as proposed residences or schools), it is generally appropriate to use the project and cumulative-level thresholds because the project itself is a source of TAC or $PM_{2.5}$ and, the cumulative risk threshold accounts for all potential sources of TAC and $PM_{2.5}$ in proximity to the new receptors on the project site. Therefore, the project, which would be a new source of TAC and $PM_{2.5}$ emissions, but would not consist of new receptors, was compared to the project-level only.

6.0 CONSTRUCTION EMISSIONS INVENTORY

Intermittent (short-term construction emissions that occur from activities, such as site-grading, trenching, paving, and building construction) and long-term air quality impacts related to the operation of the project were evaluated. The analysis focuses on daily emissions from construction and operational (mobile, area, stationary, and fugitive sources) activities. CalEEMod was used to quantify construction-related emissions. CalEEMod output worksheets are included in **Attachment A: Construction and Operational Emissions Inventory Supporting Information**. The emissions generated from these construction activities include:

- Dust (including PM_{10} and $PM_{2.5}$) primarily from "fugitive" sources (i.e., emissions released through means other than through a stack or tailpipe) such as material handling and travel on unpaved surfaces; and
- Combustion exhaust emissions of criteria air pollutants (ROG, NO_x, CO, PM_{10}, and $PM_{2.5}$) primarily from operation of heavy off-road construction equipment, haul trucks, (primarily diesel-operated), and construction worker automobile trips (primarily gasoline-operated).
- VOC as ROG primarily from "fugitive" sources such as architectural coating and paving.

Construction-related fugitive dust emissions would vary from day to day, depending on the level and type of activity, silt content of the soil, and the weather. High winds (greater than ten miles per hour) occur infrequently in the area, less than two percent of the time. In the absence of mitigation, construction activities may result in significant quantities of dust, and as a result, local visibility and PM_{10} concentrations may be adversely affected on a temporary and intermittent basis during construction. In addition, the fugitive dust generated by construction would include not only PM_{10}, but also larger particles, which would fall out of the atmosphere within several hundred feet of the site and could result in nuisance-type impacts.

Project construction is anticipated to begin early January of 2025 and be completed by the end of June of 2026 (approximately 18 months). An estimated 254 cubic yards of soil materials requiring offsite disposal would be generated during construction, and 210 cubic yards of fill would be imported to the site. Project construction would result in a total of 0.153 acres (approximately 6,659 square feet) of ground disturbance at the project site. Implementation of the project would result in the creation and/or replacement of 5,175 square feet of impervious surfaces, resulting in an 869 square-foot net increase in impervious surfaces. Construction activities would be conducted from 7 a.m. to 7 p.m. Monday through Friday. **Table 4: Construction Schedule** provides the construction schedule by construction activity.

Table 4: Construction Schedule

Construction Activity	Start	End
Site Preparation	1/16/2025	1/17/2025
Grading	1/18/2025	1/20/2025
Building Construction	1/21/2025	5/11/2026
Paving	5/12/2026	6/15/2026
Architectural Coating	6/17/2026	6/30/2026

Consistent with the BAAQMD's *2022 CEQA Air Quality Guidelines*, the reported PM_{10} and $PM_{2.5}$ emissions are related to combustion exhaust only. Nevertheless, construction-related activities, such as ground disturbance and grading, can also result in fugitive dust emissions. For a project to have a less-than-significant air quality impact related to construction-related fugitive dust emissions, the project must implement the nine BAAQMD Basic BMPs for Construction-Related Fugitive Dust Emissions (Table 5-2 of the BAAQMD's *2022 CEQA Air Quality Guidelines*). Valley Water's standard **BMP AQ-1 (BAAQMD Dust Control Measures)** includes most, but not all, of the BAAQMD's nine Basic BMPs. Thus, even with implementation of **BMP AQ-1 (BAAQMD Dust Control Measures)**, the project's impact related to fugitive dust emissions during construction would be considered potentially significant. However, with implementation of **Mitigation Measure AQ-1 (Use Additional Dust Control Measures**), which includes the rest of BAAQMD's Basic BMPs for Construction-Related Fugitive Dust Emissions, the impact related to fugitive dust emissions during construction would be reduced to a less-than-significant level.

Table 5: Estimated Average Daily Construction Emissions presents the project's estimated average daily construction exhaust emissions (i.e., total construction period emissions divided by the anticipated number of construction days) and compares them to the 2022 BAAQMD significance thresholds for construction exhaust emissions. As indicated in the table, all of the project's construction-related exhaust emissions would be below the BAAQMD significance thresholds. Thus, the project's impact related to a cumulatively considerable increase in criteria pollutant exhaust emissions during construction would be less than significant.

Although mitigation is not needed to reduce the project's impact related to a cumulatively considerable increase in criteria pollutant exhaust emissions during construction to a less-than-significant level, as explained below in the analysis for checklist item c, mitigation of the project's construction-related exhaust emissions associated with diesel-powered engines is required to reduce the health effects of carcinogenic air toxics at the closest sensitive receptors. This would be accomplished through implementation of Mitigation Measure AQ-2 (Use Tier 4 Construction Equipment), which would reduce ROG, NOx, PM_{10}, and $PM_{2.5}$ emissions. The mitigated emissions are shown in **Table 5: Estimated Average Daily Construction Emissions**. Note that mitigated CO emissions are greater than the unmitigated CO emissions due to control technologies that are focused on reducing ROG, NOx, PM_{10}, and $PM_{2.5}$ emissions, which have a reverse effect on CO emissions.

Table 5: Estimated Average Daily Construction Emissions (pounds/day)

Condition	ROG	NOx	PM_{10}	$PM_{2.5}$	CO	SO_2
Project Construction (Unmitigated)	0.96	8.98	0.31	0.28	11.1	0.02
BAAQMD Significance Threshold	54	54	82	54	---	---
Potentially Significant? (Yes or No)	No	No	No	No	No	No
Project Construction (Mitigated)	0.27	3.97	0.04	0.04	12.1	0.01
BAAQMD Significance Threshold	54	54	82	54	---	---
Potentially Significant? (Yes or No)	No	No	No	No	No	No

SOURCE: CalEEMod Version 2022.1.

Using standard fuel consumption estimates, construction activities would require approximately 32,485 gallons of diesel fuel. Using standard fuel consumption estimates, construction activities would require approximately 335 gallons of gasoline fuel. [20]

Best Management Practice AQ-1:

The following BAAQMD Dust Control Measures will be implemented (per BAAQMD *CEQA Air Quality Guidelines*, Table 5-2):

- All exposed surfaces (e.g., parking areas, staging areas, soil piles, graded areas, and unpaved access roads) shall be watered two times per day.
- All haul trucks transporting soil, sand, or other loose material off-site shall be covered.
- All visible mud or dirt trackout 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.
- Water used to wash the various exposed surfaces (e.g., parking areas, staging areas, soil piles, graded areas, etc.) will not be allowed to enter waterways.
- All vehicle speeds on unpaved roads shall be limited to 15 mph.
- 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.
- Publicly visible signs shall be posted with the telephone number and name of the person to contact at the lead agency regarding dust complaints. This person shall respond and take corrective action within 48 hours. The BAAQMD's General Air Pollution Complaints number shall also be visible to ensure compliance with applicable regulations.

[20] Fuel usage is estimated using the CalEEMod output for CO_2, and a 8.78 $kgCO_2$/gallon (gasoline) and 10.19 $kgCO_2$/gallon (diesel) conversion factor, https://www.eia.gov/environment/emissions/co2_vol_mass.php

Mitigation Measure AQ-1:

Valley Water or its contractor shall implement the following additional BAAQMD Basic BMPs for Construction-Related Fugitive Dust Emissions (BAAQMD 2022 CEQA Air Quality Guidelines, Table 5-2):

- All excavation, grading, and/or demolition activities shall be suspended when average wind speeds exceed 20 mph.
- All trucks and equipment, including their tires, shall be washed off prior to leaving the site.
- Unpaved roads providing access to sites located 100 feet or further from a paved road shall be treated with a 6- to 12-inch layer of compacted layer of wood chips, mulch, or gravel.

7.0 OPERATIONAL EMISSIONS INVENTORY

CalEEMod was also used to estimate long-term operational air emissions from the project. The existing natural gas standby generator is 50 kW (67 hp) which is to be replaced with a 100 KW (134 hp) natural gas standby generator. A new 1,250 kW (1,676 hp) diesel standby generator would provide backup power for critical equipment in the event of power interruptions. The natural gas and diesel standby generators would be tested monthly for two hours. It was assumed that the natural gas and diesel standby generators would be operated for 76 hours a year during power outages and 24 hours for monthly maintenance, (thus, a total of 100 hours per year).[21] The new 1,250 kW diesel standby generator would be Tier-4 rated. The project would not result in a change in motor vehicle operations.

Using standard fuel consumption estimates, the diesel standby generator would require 6,485 gallons of diesel fuel per year.[22] Because the natural gas backup generator would be used to provide limited power to critical motor control and communications equipment during electrical outages, the amount of natural gas that would be required annually to operate the natural gas generator would be minimal.

Estimated daily and annual operational emissions that would be associated with the project are presented in **Table 6: Estimated Daily Operational Emissions** and **Table 7: Estimated Annual Operational Emissions** and are compared to BAAQMD's 2022 thresholds of significance. The operational emissions are the result of the future condition emissions minus the baseline condition emissions. As indicated, the estimated project operational emissions would be below the BAAQMD's significance thresholds and would be less than significant. **Attachment A: Construction and Operational Emissions Inventory Supporting Information** provides detailed emission calculations for project operations.

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[21] The BAAQMD recommends that lead agencies include non-testing and non-maintenance (emergency) operations hours, in addition to the permitted testing and maintenance hours for purposes of calculating emissions.

[22] Fuel usage is estimated using the CalEEMod output for CO_2, and a 8.78 kgCO_2/gallon (gasoline) and 10.19 kgCO_2/gallon (diesel) conversion factor, https://www.eia.gov/environment/emissions/co2_vol_mass.php

Table 6: Estimated Daily Operational Emissions (pounds/day)

Condition	ROG	NOx	PM10	PM2.5	CO	SO2
Stationary Source Emissions	6.68	24.7	0.82	0.82	17.1	0.03
BAAQMD Significance Threshold	54	54	82	54	---	---
Potentially Significant? (Yes or No)	No	No	No	No	No	No

SOURCE: CalEEMod Version 2022.1.0.

Table 7: Estimated Daily Operational Emissions (tons/year)

Condition	ROG	NOx	PM10	PM2.5	CO	SO2
Stationary Source Emissions	0.17	0.62	0.02	0.02	0.43	<0.01
BAAQMD Significance Threshold	54	54	82	54	---	---
Potentially Significant? (Yes or No)	No	No	No	No	No	No

SOURCE: CalEEMod Version 2022.1.0.

8.0 ODOR IMPACTS

Though offensive odors from stationary and mobile sources rarely cause any physical harm, they remain unpleasant and can lead to public distress, generating citizen complaints to local governments. The occurrence and severity of odor impacts depend on the nature, frequency, and intensity of the source; wind speed and direction; and the sensitivity of receptors. Generally, odor emissions are highly dispersive, especially in areas with higher average wind speeds. However, odors disperse less quickly during inversions or during calm conditions, which hamper vertical mixing and dispersion.

The BAAQMD's significance criteria for odors are subjective and are based on the number of odor complaints generated by a project. Generally, the BAAQMD considers any project with the potential to frequently expose members of the public to objectionable odors to cause a significant impact. With respect to the project, diesel-fueled construction equipment exhaust would generate some odors. However, these emissions typically dissipate quickly and would be unlikely to affect a substantial number of people. The project would not involve operational activities that generate substantial odors.

The BAAQMD significance threshold for odor impacts is five confirmed complaints per year averaged over three years. Given the project design elements and facility's very limited odor complaint history, the project is not expected to change the odor impacts.

Best Management Practice AQ-2: Materials with decaying organic material, or other potentially odorous materials, shall be handled in a manner that avoids impacting residential areas and other sensitive receptors, including the following:

- Avoid stockpiling potentially odorous materials within 1,000 feet of residential areas or other odor sensitive land uses.
- Odorous stockpiles disposed of at an appropriate landfill.

Therefore, odor impacts associated with the project would be less than significant.

9.0 CUMULATIVE IMPACTS

Cumulative impacts are defined in CEQA as "two or more individual effects which, when considered together, are considerable or which compound or increase other environmental impacts" (CEQA Guidelines Section 15355). Stated in another way, "a cumulative impact consists of an impact which is created as a result of the combination of the project evaluated in the EIR together with other projects causing relating impacts" (CEQA Guidelines Section 15130 [a][1]).

Cumulative impacts would exist when either direct air quality impacts or multiple construction projects occur within the same area simultaneously. If a project were to produce air quality emissions simultaneously to a nearby construction project, the addition of both project emissions to the environment could exceed significance thresholds. For this project, the construction emissions were found to be less than significant. If a nearby project was to be under construction at the same time, that project would need to produce an additive amount of emissions close to the project site such that emissions would exceed thresholds. No cumulatively considerable construction projects are within at least 0.5 mile of the project site. Cumulative projects beyond 0.5 miles would be unlikely to overlap with project impacts due to dispersion and dilution of emissions. Therefore, a less than significant cumulative air quality impact with mitigation would be expected during construction and operation.

The project site is zoned industrial, and the project has been designed to be consistent with this zoning designation. The project would generate less than significant direct and cumulative air quality impacts. Since the project would not have any significant direct impacts and would not have any significant cumulative impacts, the project would not conflict with either the BAAQMD's *2017 Bay Area Clean Air Plan*.

10.0 HEALTH RISK ASSESSMENT

For purposes of CEQA, BAAQMD considers sensitive receptors to be land uses associated with the segments of the population that are most susceptible to poor air quality: children, the elderly, and those with pre-existing serious health problems affected by air quality. Examples include residences, schools and school yards, parks and playgrounds, daycare centers, nursing homes, and medical facilities. BAAQMD considers the relevant zone of influence for an assessment of air quality health risks to be within 1,000 feet of a project site. The nearest sensitive receptors to the Project Site are existing single-family and multi-family residences located south, north, and northeast of the VPS, and north of the off-site staging area.

The HRA was conducted following methodologies in OEHHA's *Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments*.[23] This was accomplished by applying the estimated concentrations at the receptors analyzed to the established cancer risk estimates and acceptable reference concentrations for non-cancer health effects. **Attachment B: Health Risk Assessment**

[23] Office of Environmental Health Hazard Assessment, *Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments*, February 2015, http://oehha.ca.gov/air/hot_spots/hotspots2015.html

Methodology, Assumptions, and Detailed Results provides additional methodologies and assumptions used within the health risk assessment.

OEHHA specifies that due to the uncertainty in assessing cancer risk from very short-term exposures, it does not recommend assessing cancer risk for projects lasting less than two months. OEHHA recommends that exposure from projects longer than two months, but less than six months be assumed to last six months while exposure from projects lasting more than six months should be evaluated for the duration of the project.

The project involves construction activities that would last for 18 months. The project would constitute a new emission source of DPM and $PM_{2.5}$ due to its construction activities and operation of the new diesel standby generator. Studies have demonstrated that DPM from diesel-fueled engines is a human carcinogen and that chronic (long-term) inhalation exposure to DPM poses a chronic health risk.

Health effects from carcinogenic air toxics are usually described in terms of individual cancer risk. Individual cancer risk is the likelihood that a person exposed to air toxic concentrations over a 70-year lifetime will contract cancer, based on the use of standard risk-assessment methodology. The maximally exposed individual (MEI) represents the worst–case risk estimate, based on a theoretical person continuously exposed for a lifetime at the point of highest compound concentration in the air. This is a highly conservative assumption since most people do not remain at home all day and on average residents change residences every 11 to 12 years. In addition, this assumption assumes that residents are experiencing outdoor concentrations for the entire exposure period.

The HRA analyzes the incremental cancer risks to sensitive receptors in the vicinity of the project, using emission rates (in pounds per hour) from the construction activities and operations. DPM (reported as combustion exhaust emissions of $PM_{2.5}$) emission rates were input into the USEPA's AERMOD atmospheric dispersion model to calculate ambient air concentrations at receptors in the project vicinity. The HRA is intended to provide a worst–case estimate of the increased exposure by employing a standard emission estimation program, an accepted pollutant dispersion model, approved toxicity factors, and conservative exposure parameters.

In accordance with OEHHA *Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments,* the HRA was accomplished by applying the highest estimated concentrations of TAC at the receptors analyzed to the established cancer potency factors and acceptable reference concentrations for non-cancer health effects. Increased cancer risks were calculated using the modeled DPM concentrations and OEHHA-recommended methodologies for both child exposure (3rd trimester through two years of age) and adult exposure. The cancer risk calculations were based on applying the OEHHA-recommended age sensitivity factors and breathing rates, as well as fraction of time at home and an exposure duration of 30 years, to the DPM concentration exposures. Age-sensitivity factors reflect the greater sensitivity of infants and small children to cancer causing air pollutants.

These conservative methodologies overestimate both non-carcinogenic and carcinogenic health risk, possibly by an order of magnitude or more. Therefore, for carcinogenic risks, the actual probabilities of cancer formation in the populations of concern due to exposure to carcinogenic pollutants are likely to be lower than the risks derived using the HRA methodology. The extrapolation of toxicity data in animals to humans, the estimation of concentration prediction methods within dispersion models; and the variability in lifestyles, fitness and other confounding factors of the human population also contribute to the overestimation of health impacts. Therefore, the results of the HRA are highly overstated.

Construction Cancer Risk at Existing Residences

The following describes the HRA results associated with existing residential receptors due to unmitigated project construction activities. As shown in **Table 8: Estimated Unmitigated Construction Health Impacts at Existing Receptors**, the maximum cancer risk from unmitigated project construction emissions for a residential adult receptor would be 1.5 people out of every 1 million people exposed, and for a residential child receptor would be 32.9 people out of every 1 million people exposed. The maximum exposed individual residence (MEIR) during project construction is located on Mojonera Court (east of the project Site). The locations which exceed the BAAQMD threshold extend to approximately 600 feet from the project Site. Unmitigated, the cancer risk from project construction activities is anticipated to exceed the BAAQMD threshold for increased cancer risk of 10 people out of every 1 million people exposed. The impact related to increased cancer risk during construction would be potentially significant.

Table 8: Estimated Unmitigated Construction Health Impacts at Existing Receptors

Source	Cancer Risk (child/adult)	Hazard Index	$PM_{2.5}$ Concentration
Unmitigated Project Construction	32.9/1.48	0.03	0.19
BAAQMD Significance Threshold	10.0	1.00	0.30
Potentially Significant (Yes or No)?	**Yes**	No	No

To reduce the cancer risk during project construction to a less-than-significant level, Valley Water's construction contractor would be required to implement **Mitigation Measure AQ-2 (Use Tier 4 Construction Equipment**), which requires all construction equipment meet USEPA certified "Tier 4 Final" emission standards. As shown in **Table 9: Estimated Mitigated Construction Health Impacts at Existing Receptors**, with implementation of **Mitigation Measure AQ-2 (Use Tier 4 Construction Equipment)**, the maximum cancer risk from project construction for a residential adult receptor would be 0.2 people for every 1 million exposed, and for a residential child receptor would be 4.4 people for every 1 million exposed. Thus, with implementation of **Mitigation Measure AQ-2 (Use Tier 4 Construction Equipment**), the cancer risk from project construction activities would be reduced to a less than significant level.

Mitigation Measure AQ-2: The applicant shall implement the following measures during construction to further reduce construction exhaust emissions:

> All construction equipment larger than 50 horsepower used at the site for more than two continuous days or 20 hours total shall utilize diesel engines that are USEPA certified "Tier 4 final" emission standards for particulate matter and be equipped with CARB-certified Level 3 Diesel Particulate Filters. Prior to the issuance of any demolition/construction permits, the construction contractor shall submit

specifications of the equipment to be used during construction and Valley Water shall confirm this requirement is met.[24]

Equipment such as air compressors, concrete/industrial saws, forklifts, light stands, manlifts, pumps, and welders shall be electric or alternative-fueled (i.e., non-diesel), where feasible. Pole power shall be utilized at the earliest feasible point in time and shall be used to the maximum extent feasible in lieu of generators. If stationary construction equipment, such as diesel-powered generators, must be operated continuously, such equipment must be Tier 4 Final construction equipment or better and located at least 100 feet from air quality sensitive land uses (e.g., residences, schools, childcare centers, hospitals, parks, or similar uses), whenever possible.

At a minimum, require that construction vendors, contractors, and/or haul truck operators commit to using 2010 model year trucks (e.g., material delivery trucks and soil import/export with a gross vehicle weight rating of at least 14,001 pounds), that meet CARB's 2010 engine emissions standards or newer, cleaner trucks.

Table 9: Estimated Mitigated Construction Health Impacts at Existing Receptors

Source	Cancer Risk (child/adult)	Hazard Index	$PM_{2.5}$ Concentration
Mitigated Project Construction	4.41/0.20	<0.01	0.03
BAAQMD Significance Threshold	10.0	1.00	0.30
Potentially Significant (Yes or No)?	No	No	No

Construction Non-Cancer Health Hazard at Existing Residences

Both acute (short-term) and chronic (long-term) adverse health impacts unrelated to cancer are measured against a hazard index (HI), which is defined as the ratio of the predicted incremental DPM exposure concentration from the project to a reference exposure level (REL) that could cause adverse health effects. The REL are published by OEHHA based on epidemiological research. The ratio (referred to as the Hazard Quotient [HQ]) of each non-carcinogenic substance that affects a certain organ system is added to produce an overall HI for that organ system. The overall HI is calculated for each organ system. The impact is considered to be significant if the overall HI for the highest-impacted organ system is greater than 1.0.

There are a cancer potency factor and a chronic hazard index but no acute hazard index associated with DPM.[25] The chronic reference exposure level for DPM was established by the California OEHHA[26] as 5 $\mu g/m^3$. Thus, the project-related annual concentration of DPM cannot exceed 5.0 $\mu g/m^3$; resulting in a chronic HI of greater than 1.0 (i.e., DPM annual concentration/5.0 $\mu g/m^3$).

[24] USEPA and CARB have implemented regulations and a tiering system to reduce emissions from off-road equipment with increasing combustion efficiency (i.e., decreasing emissions) where Tier 1 is the least efficient (greatest emissions) and Tier 4 is the most efficient (least emissions). The regulations have been implemented over time such that Tier 1 was phased out in the 1990's and Tier 2 was required, followed by implementation of Tier 3 and Tier 4 by 2015 with a phase out of Tier 2.

[25] Office of Environmental Health Hazards Assessment Chemical Database – Air, http://oehha.ca.gov/chemicals

[26] California Office of Environmental Health Hazards Assessment - Acute, 8-hour, and Chronic Reference Exposure Levels, June 2014, http://www.oehha.ca.gov/air/allrels.html

During Project construction, the unmitigated chronic hazard index would be 0.03 based on a Project-related maximum annual diesel concentration of 0.17 $\mu g/m^3$ (per dispersion modeling analysis) or 0.17 $\mu g/m^3$/5.0 $\mu g/m^3$. Thus, the chronic hazard index would be below the project-level threshold of 1.0 and the Project's impact would be less than significant. Although mitigation is not needed to reduce the hazard index below the threshold, implementation of **Mitigation Measure AQ-2 (Use Tier 4 Construction Equipment)** would reduce the chronic hazard index to less than 0.01.

Construction $PM_{2.5}$ Concentration at Existing Residences

Dispersion modeling was also used to estimate the exposure of sensitive receptors to project-related concentrations of $PM_{2.5}$ during construction. The BAAQMD *2022 CEQA Air Quality Guidelines* requires inclusion of $PM_{2.5}$ exhaust and fugitive dust emissions in this analysis. The project's annual unmitigated $PM_{2.5}$ concentration from construction activities was estimated to be 0.19 $\mu g/m^3$. Since this is below the BAAQMD significance threshold of 0.3 $\mu g/m^3$, the impact related to exposure of sensitive receptors to project-related concentrations of $PM_{2.5}$ during construction would be less than significant and no mitigation is required.

Operational Health Impacts at Existing Residences

As shown in **Table 10: Estimated Operational Health Impacts at Existing Receptors**, the maximum cancer risk from the project's operational emissions (i.e., operation of the diesel standby generator during monthly testing and during power outages) for a residential adult receptor would be 1.1 people for every 1 million exposed, and for a residential child receptor would be 3.4 people for every 1 million exposed. Since the cancer risk from project operations is less than the BAAQMD threshold of 10 people for every 1 million exposed, the impact related to increased cancer risk from project operations would be less than significant and no mitigation is required.

Table 10: Estimated Operational Health Impacts at Existing Receptors

Source	Cancer Risk (child/adult)	Hazard Impact	$PM_{2.5}$ Concentration
Project Operation	3.44/1.05	<0.01	0.01
BAAQMD Significance Threshold	10.0	1.00	0.30
Potentially Significant (Yes or No)?	No	No	No

Construction and Operational Health Impacts at Existing Residences

With implementation of **Mitigation Measure AQ-2 (Use Tier 4 Construction Equipment)** during construction, the total combined cancer risk for residential receptors from Project construction and operations would be 7.9 people for every 1 million people exposed. Since the mitigated construction cancer risk, when combined with the cancer risk from Project operations, would be below the BAAQMD threshold of 10 people for every 1 million people exposed, the impact is less than significant with mitigation.

11.0 GREENHOUSE GAS EMISSIONS

“Global warming” and “global climate change” are the terms used to describe the increase in the average temperature of the earth’s near-surface air and oceans since the mid-20th century and its projected continuation. Warming of the climate system is now considered to be unequivocal, with global surface temperature increasing approximately 1.33 degrees Fahrenheit (°F) over the last 100 years. Continued warming is projected to increase global average temperature between 2 and 11°F over the next 100 years.

Natural processes and human actions have been identified as the causes of this warming. The Intergovernmental Panel on Climate Change (IPCC) concludes that variations in natural phenomena such as solar radiation and volcanoes produced most of the warming from pre-industrial times to 1950 and had a small cooling effect afterward. After 1950, however, increasing GHG concentrations resulting from human activity such as fossil fuel burning, and deforestation have been responsible for most of the observed temperature increase. These basic conclusions have been endorsed by more than 45 scientific societies and academies of science, including all of the national academies of science of the major industrialized countries. Since 2007, no scientific body of national or international standing has maintained a dissenting opinion.

Increases in GHG concentrations in the earth’s atmosphere are thought to be the main cause of human-induced climate change. GHG naturally trap heat by impeding the exit of solar radiation that has hit the earth and is reflected back into space. Some GHG occurs naturally and are necessary for keeping the earth’s surface inhabitable. However, increases in the concentrations of these gases in the atmosphere during the last 100 years have decreased the amount of solar radiation that is reflected back into space, intensifying the natural greenhouse effect and resulting in the increase of global average temperature.

Gases that trap heat in the atmosphere are referred to as GHG because they capture heat radiated from the sun as it is reflected back into the atmosphere, much like a greenhouse does. The accumulation of GHG has been implicated as the driving force for global climate change. The primary GHG are carbon dioxide (CO_2), methane (CH_4), and nitrous oxide (N_2O), ozone, and water vapor.

While the presence of the primary GHG in the atmosphere are naturally occurring, CO_2, CH_4, and N_2O are also emitted from human activities, accelerating the rate at which these compounds occur within earth’s atmosphere. Emissions of CO_2 are largely by-products of fossil fuel combustion, whereas methane results from off-gassing associated with agricultural practices and landfills. Other GHG include hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride, and are generated in certain industrial processes.

CO_2 is the reference gas for climate change because it is the predominant GHG emitted. The effect that each of the aforementioned gases can have on global warming is a combination of the mass of their emissions and their global warming potential (GWP). GWP indicates, on a pound-for-pound basis, how much a gas is predicted to contribute to global warming relative to how much warming would be predicted to be caused by the same mass of CO_2. CH_4 and N_2O are substantially more potent GHG than CO_2, with GWP of 25 and 298 times that of CO_2, respectively.[27]

In emissions inventories, GHG emissions are typically reported in terms of pounds or metric tons (MT) of CO_2 equivalents (CO_2e). CO_2e are calculated as the product of the mass emitted of a given GHG and its specific GWP. While CH_4 and N_2O have much higher GWP than CO_2, CO_2 is emitted in such vastly higher quantities that it accounts for the majority of GHG emissions in CO_2e.

Fossil fuel combustion, especially for the generation of electricity and powering of motor vehicles, has led to substantial increases in CO_2 emissions (and thus substantial increases in atmospheric concentrations of CO_2). In pre-industrial times (c. 1860), concentrations of atmospheric CO_2 were approximately 280 parts per million (ppm). By March 2024, atmospheric CO_2 concentrations had increased to 424.38 ppm, 52 percent above pre-industrial concentrations.[28]

There is international scientific consensus that human-caused increases in GHG have and will continue to contribute to global warming. Potential global warming impacts in California may include, but are not limited to, loss in snow pack, sea level rise, more extreme heat days per year, more high ozone days, more large forest fires, and more drought years. Secondary effects are likely to include a global rise in sea level, impacts to agriculture, changes in disease vectors, and changes in habitat and biodiversity.[29]

California Environmental Quality Act and Climate Change

Under CEQA, lead agencies are required to disclose the reasonably foreseeable adverse environmental effects of projects they are considering for approval. GHG emissions have the potential to affect the environment because they contribute to global climate change. In turn, global climate change has the potential to cause sea level rise, alter rainfall and snowfall patterns, and affect habitat.

California Code of Regulations Title 24

Although not originally intended to reduce greenhouse gas emissions, Title 24 of the California Code of Regulations, Part 6: California's Energy Efficiency Standards for Residential and Nonresidential Buildings, were first established in 1978 in response to a legislative mandate to reduce California's energy consumption. The standards are updated periodically to allow for the consideration and possible incorporation of new energy efficiency technologies and methods. Energy efficient buildings require less electricity, natural gas, and other fuels. Electricity production from fossil fuels and on-site fuel combustion (typically for water heating) results in GHG emissions. Therefore, increased energy efficiency results in decreased GHG emissions.

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[27] Global Warming Potential values, https://www.ghgprotocol.org/sites/default/files/ghgp/Global-Warming-Potential-Values%20%28Feb%2016%202016%29_1.pdf

[28] Earth System Research Laboratory, *Recent Monthly Mean CO_2 at Mauna Lora,* www.esrl.noaa.gov/gmd/ccgg/trends/

[29] California Environmental Protection Agency, *2006 Final Climate Action Team Report to the Governor and Legislature,* March 2006, https://planning.lacity.org/eir/8150Sunset/References/4.E.%20Greenhouse%20Gas%20Emissions/GHG.23_CalEPA%202006%20Report%20to%20Governor.pdf

Accordingly, Title 24 in the CalGreen Building Code is now a part of the statewide strategy for reducing GHG emissions and is the only statewide plan for reduction of GHG emissions that every local agency must adopt in a public hearing by adopting the state building code. Consistent with CalGreen, the state recognized that GHG reductions would be achieved through buildings that exceed minimum energy-efficiency standards, decrease consumption of potable water, reduce sold waste during construction and operation, and incorporate sustainable materials. Compliance with Title 24 of the CalGreen Building Code is thus a vehicle to achieve statewide electricity and natural gas efficiency targets, and lower GHG emissions from waste and water transport sectors.

Executive Order S-3-05

Governor Schwarzenegger established Executive Order S-3-05 in 2005, in recognition of California's vulnerability to the effects of climate change. Executive Order S-3-05 set forth a series of target dates by which statewide emissions of GHG would be progressively reduced, 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.

The executive order directed the Secretary of CalEPA to coordinate a multi-agency effort to reduce GHG emissions to the target levels. The Secretary will also submit biannual reports to the governor and California Legislature describing the progress made toward the emissions targets, the impacts of global climate change on California's resources, and mitigation and adaptation plans to combat these impacts. To comply with the executive order, the secretary of CalEPA created the California Climate Action Team, made up of members from various state agencies and commissions. The report proposed to achieve the targets by building on the voluntary actions of California businesses, local governments, and communities and through state incentive and regulatory programs.

Assembly Bill 32 (California Global Warming Solutions Act of 2006)

California passed the California Global Warming Solutions Act of 2006 (AB 32; California Health and Safety Code Division 25.5, Sections 38500 - 38599). AB 32 established regulatory, reporting, and market mechanisms to achieve quantifiable reductions in GHG emissions and establishes a cap on statewide GHG emissions. AB 32 required that statewide GHG emissions be reduced to 1990 levels by 2020. This reduction was to be accomplished by enforcing a statewide cap on GHG emissions that were to be phased in starting in 2012. To effectively implement the cap, AB 32 directed CARB to develop and implement regulations to reduce statewide GHG emissions from stationary sources. AB 32 specified that regulations adopted in response to AB 1493 were used to address GHG emissions from vehicles. However, AB 32 also included language stating that if the AB 1493 regulations cannot be implemented, then CARB was to develop new regulations to control vehicle GHG emissions under the authorization of AB 32.

AB 32 required CARB to adopt a quantified cap on GHG emissions representing 1990 emissions levels and disclose how it arrived at the cap; institute a schedule to meet the emissions cap; and develop tracking, reporting, and enforcement mechanisms to ensure that the state reduces GHG emissions enough to meet the cap. AB 32 also includes guidance on instituting emissions reductions in an economically efficient manner, along with conditions to ensure that businesses and consumers are not unfairly affected by the reductions. Pursuant to AB 32, CARB identified 427 million MT CO_2e as the total Statewide aggregated 1990 GHG emissions level, which serves as the 2020 emissions limit. Using these criteria to reduce statewide GHG emissions to 1990 levels by 2020 represented an approximate 25 to 30 percent reduction in current emissions levels. However, CARB also had discretionary authority to seek greater reductions in more significant and growing GHG sectors, such as transportation, as compared to other sectors that are not anticipated to significantly increase emissions. The state achieved its 2020 GHG emissions reductions target of returning to 1990 levels four years earlier than mandated by AB 32.

Climate Change Scoping Plans

AB 32 also required CARB to develop a Scoping Plan that describes the approach California will take to reduce GHG to achieve the goal of reducing emissions to 1990 levels by 2020. The Scoping Plan was first approved by CARB in 2008 and must be updated every five years. The initial AB 32 Scoping Plan contains the main strategies California will use to reduce the GHG that cause climate change. The initial Scoping Plan has a range of GHG reduction actions which include direct regulations, alternative compliance mechanisms, monetary and non-monetary incentives, voluntary actions, market-based mechanisms such as a cap-and-trade system, and an AB 32 program implementation fee regulation to fund the program. In August 2011, the initial Scoping Plan was approved by CARB.

The 2013 Scoping Plan Update builds upon the initial Scoping Plan with new strategies and recommendations. The 2013 Update identifies opportunities to leverage existing and new funds to further drive GHG emission reductions through strategic planning and targeted low carbon investments. The 2013 Update defines CARB climate change priorities for the next five years and sets the groundwork to reach California's long-term climate goals set forth in Executive Orders S-3-05 and B-16-2012. The 2013 Update highlights California progress toward meeting the near-term 2020 GHG emission reduction goals defined in the initial Scoping Plan. In the 2013 Update, nine key focus areas were identified (energy, transportation, agriculture, water, waste management, and natural and working lands), along with short-lived climate pollutants, green buildings, and the cap-and-trade program.

On May 82, 2014, the First Update to the Climate Change Scoping Plan was approved by CARB, along with the finalized environmental documents. The First Update to the Climate Change Scoping Plan identified the 2020 emissions limit as 431 million metric tons of CO_2e and the 2020 business-as-usual forecast as 509 million metric tons of CO_2e. Finally, the Updated Scoping Plan provided recommendations for establishing a mid-term emissions limit that aligns with the long-term (2050) goals of Executive Order S-3-05. The recommendations covered energy, transportation, agriculture, water, waste management, natural and working lands, short-lived climate pollutants, green building, and cap-and-trade sectors.

In 2017, CARB approved the Second Update to the Climate Change Scoping Plan (2017 Scoping Plan). The 2017 Scoping Plan identified progress made to meet the near-term (2020) objectives of AB 32 and defined California's climate change priorities and activities for the next several years. The 2017 Scoping Plan identified the 2020 emissions limit as 431 million metric tons of CO_2e and the 2020 business-as-usual forecast as 509 million metric tons of CO_2e. The 2017 Scoping Plan provided strategies for meeting the mid-term 2030 greenhouse gas reduction target set by Senate Bill (SB) 32. The 2017 Scoping Plan also identified how the State can substantially advance toward the 2050 greenhouse gas reduction target of Executive Order S-3-05, which consists of reducing greenhouse gas emissions to 80 percent below 1990 levels. The recommendations covered the key sectors, including energy and industry; transportation; natural and working lands; waste management; and water.

In 2022, CARB approved the Third Update to the Climate Change Scoping Plan (2022 Scoping Plan), which lays out a path to achieve targets for carbon neutrality and reduce anthropogenic GHG emissions by 85 percent below 1990 levels no later than 2045, as directed by Assembly Bill 1279.[30] The 2022 Scoping Plan:

- Identifies a path to keep California on track to meet its SB 32 GHG reduction target of at least 40 percent below 1990 emissions by 2030.
- Identifies a technologically feasible, cost-effective path to achieve carbon neutrality by 2045 and a reduction in anthropogenic emissions by 85 percent below 1990 levels.
- Focuses on strategies for reducing California's dependency on petroleum to provide consumers with clean energy options that address climate change, improve air quality, and support economic growth and clean sector jobs.
- Integrates equity and protecting California's most impacted communities as driving principles throughout the document.
- Incorporates the contribution of natural and working lands to the state's GHG emissions, as well as their role in achieving carbon neutrality.
- Relies on the most up-to-date science, including the need to deploy all viable tools to address the existential threat that climate change presents, including carbon capture and sequestration, as well as direct air capture.
- Evaluates the substantial health and economic benefits of taking action.
- Identifies key implementation actions to ensure success.

The recommended measures in the 2022 Scoping Plan and previous Scoping Plans are broad policy and regulatory initiatives that will be implemented at the State level and do not relate to the construction and operation of individual projects.

Bay Area Air Quality Management District

The BAAQMD is the regional agency with jurisdiction over the nine-county region located in the SFBAAB. The Association of Bay Area Governments, Metropolitan Transportation Commission, county transportation agencies, cities and counties, and various nongovernmental organizations also join of regulations and policies, as well as implementation of extensive education and public outreach programs.

[30] California Air Resources Board, *Final 2022 Scoping Plan Update*, November 16, 2022, https://ww2.arb.ca.gov/our-work/programs/ab-32-climate-change-scoping-plan#:~:text=The%20Draft%202022%20Scoping%20Plan,neutrality%20no%20later%20than%202045

The *BAAQMD 2017 Clean Air Plan* defines a vision for achieving the ambitious GHG reduction targets for 2030 and 2050 and provides a regional climate protection strategy for the Bay Area to achieve the GHG reduction targets. The 2017 Clean Air Plan includes 85 source control measures, many of which are only applicable for regional or government implementation.

Under CEQA, the BAAQMD is a commenting responsible agency for air quality within its jurisdiction or impacting its jurisdiction. The BAAQMD reviews projects to ensure that they would: (1) support the primary goals of the latest Air Quality Plan; (2) include applicable control measures from the Air Quality Plan; and (3) not disrupt or hinder implementation of any Air Quality Plan control measures.

On April 20, 2022, the BAAQMD Board of Directors adopted the *CEQA Thresholds for Evaluating the Significance of Climate Impacts from Land Use Projects and Plans* (Guidance). In its Guidance, BAAQMD recommends thresholds for determining whether a proposed project will have a significant impact on climate change. Under the Guidance, the BAAQMD establishes that if a project would contribute its “fair share” of what will be required to achieve the long-term climate goals in California, then a reviewing agency can find that the impact will not be significant because the project will help to solve the problem of global climate change.

The project is considered a stationary source of GHG emissions due to the permits needed to install and operate the standby generators, and the monthly testing and emergency use of the generators. The project is not considered a land use development project because the VPS was developed in 1975 and the project would not result in any changes to land use.

Bay Area Air Quality Management District 2022 CEQA Air Quality Guidelines

CEQA Guidelines Section 15064.4 provides guidance to lead agencies for determining the significance of environmental impacts pertaining to GHG emissions. Section 15064.4(a) states that a Lead Agency should make a good-faith effort that is based, to the extent possible, on scientific and factual data to describe, calculate, or estimate the amount of GHG emissions that would result from implementation of a project. CEQA Guidelines Section 15064.4(b) also states that, when assessing the significance of impacts from GHG emissions, a Lead Agency should consider (1) the extent to which the project may increase or reduce GHG emissions compared with existing conditions, (2) whether the project’s GHG emissions would exceed a threshold of significance that the Lead Agency has determined to be applicable to the project, and (3) the extent to which the project would comply with regulations or requirements adopted to implement a statewide, regional, or local plan for the reduction or mitigation of GHG emissions.

In 2022, BAAQMD revised its recommended significance thresholds for GHG emissions and climate change impacts. BAAQMD recommends CEQA Lead Agencies estimate and disclose the construction-related GHG emissions of proposed projects but BAAQMD has not adopted numerical significance thresholds for construction-related emissions. Monthly testing and emergency use of the project’s standby generators is considered a stationary source of GHG emissions requiring permits from BAAQMD for generator installation and operations. Since the project is not a land use development project, the BAAQMD’s recommendations for evaluating the GHG emissions generated by land use projects do not apply.

Santa Clara Valley Water Climate Change Action Plan

In 2021, Santa Clara Valley Water published a Climate Change Action Plan (CCAP) is to guide Valley Water's climate change response through the development of goals and strategies that:

- reduce Valley Water's contribution to climate change by reducing GHG emissions (mitigation); and
- enable Valley Water to adapt to the potential impacts of climate change in each of Valley Water's mission areas.

The CCAP describes future climate impacts as well as agency-specific vulnerabilities and risks associated with climate change. The CCAP is intended as a plan that provides goals, establishes strategies, suggests possible actions, and proposes the development of an implementation program to achieve these goals and strategies. The program will instill climate resilience as a priority throughout Valley Water's many areas of work and will build and expand upon Valley Water's many existing climate-related efforts.[31]

Goals, strategies, and possible actions were developed to guide Valley Water's climate change efforts. There are seven goals—three mitigation goals and four adaptation goals. The mitigation goals correspond to an internationally recognized system of carbon accounting that divides emissions into three scopes: direct emissions, purchased electricity, and indirect emissions. The adaptation goals correspond to Valley Water's three mission areas, with an additional goal to address emergency preparedness. Each goal contains strategies offering guidance on how to achieve the goal.

Goal 1: Reduce Direct Greenhouse Gas Emissions (Scope 1)

Scope 1 emissions (Direct Emissions) make up a small percentage of Valley Water's annual GHG emissions. In 2016, this category comprised about 13 percent of total recorded emissions. Valley Water plans to continue adding electric vehicles and other fuel-efficient vehicles to its fleet, along with implementing policies to promote EV use. These emissions have been reduced by providing more technology to support remote meetings, reducing the number of trips made, improving the availability of drop-in cubicles and pool vehicles, and by streamlining routes to minimize vehicle miles traveled. Valley Water plans to continue to replace various types of agency-owned equipment with more fuel efficient or electric models to reduce GHG emissions and updating diesel engines to comply with the Tier 4 diesel emissions mandate. Valley Water can further lower GHG emissions by improving the efficiency of heating and cooling equipment at agency facilities.

Goal 2: Expand Renewable Energy and Improve Energy Efficiency (Scope 2)

Scope 2 (purchased energy) emissions fluctuated by up to 6,000 metric tons of CO_2e per year due to Valley Water's energy portfolio. Ninety-five percent of Valley Water's purchased electricity is sourced from the Power and Water Resources Pooling Agency (PWRPA), which enables Valley Water to source carbon-free electricity from utility-scale solar and hydroelectric projects. Emissions from PWRPA's electricity vary if

[31] Santa Clara Valley Water Climate Action Plan, July 2021, https://www.valleywater.org/your-water/water-supply-planning/climate-change-action-plan

environmental conditions change the availability of these forms of electricity. Purchased electricity makes up a small percentage of total GHG emissions.

Valley Water plans to continue to optimize energy use and reduce overall demand for purchased electricity. This can be achieved by improving the efficiency of office equipment and expanding energy and water saving measures through the Green Business Program's certification.

Goal 3: Reduce Indirect Greenhouse Gas Emissions (Scope 3)

GHG emissions (Scope 3) from importing water from the State Water Project consistently make up the largest percentage of Valley Water's GHG emissions. Other sources of imported water—the Central Valley Project and water distributed from the Hetch Hetchy system—use hydropower and therefore do not contribute to Valley Water's emissions. Emissions from imported water comprised about 75 percent of total GHG emissions. Other Scope 3 emissions from fuel use, employee commutes, and business travel remain relatively constant and make up a small portion of total emissions.

Policies that enable telework, alternative schedules, use of public transit, and other ways to reduce VMTs all contribute to reducing indirect GHG emissions. In addition, Valley Water's continuing to invest in EV charging stations and improve the convenience of their use further incentivize low emission commuting.

In 2017, the total GHG emissions associated with Valley Water were 15,300 metric tons of CO_2e. The GHG emissions sequestered or reduced were 19,235 metric tons of CO_2e for a net reduction of 3,935 metric tons of CO_2e.

Greenhouse Gas Regional Emission Estimates

In 2021, the United States emitted about 6,340 million metric tons of CO_2e or 5,586 million metric tons of carbon dioxide equivalents after accounting for sequestration from the land sector. Emissions increased in 2021 by 6 percent. The increase in total GHG emissions was driven largely by an increase in CO_2 emissions from fossil fuel combustion. In 2021, CO_2 emissions from fossil fuel combustion increased by 7 percent relative to the previous year. This increase in fossil fuel consumption emissions was due primarily to economic activity rebounding after the height of the COVID-19 pandemic.[32]

According to the USEPA, net emissions in 2021 were 17 percent below 2005 levels. The recent decline is mostly due to a shift to less CO_2-intensive natural gas for generating electricity and a rapid increase in the use of renewable energy in the electric power sector. Transportation activities accounted for 29 percent of total GHGs emissions in 2021. Emissions from electric power accounted for the second largest portion (25 percent), while emissions from industry accounted for the third largest portion (24 percent) of total GHG in 2021. [33]

In 2021, California emitted approximately 381 million metric tons of CO_2e, 12 million metric tons of CO_2e higher than 2020 levels and 50 million metric tons of CO_2e below the 2020 GHG limit of 431 million metric

[32] United States Environmental Protection Agency, *Inventory of U.S. Greenhouse Gas Emissions and Sinks 1990 - 2021*, April 2023, https://www.epa.gov/ghgemissions/inventory-us-greenhouse-gas-emissions-and-sinks

[33] United States Environmental Protection Agency, *Inventory of U.S. Greenhouse Gas Emissions and Sinks 1990 - 2021*, April 2023, https://www.epa.gov/ghgemissions/inventory-us-greenhouse-gas-emissions-and-sinks

tons of CO_2e).[34] The transportation sector represents 39 percent of the total GHG emissions. The industrial sector represents 22 percent of the total GHG emissions, followed by electricity (16 percent), and residential, agricultural, and commercial (8, 8, and 6 percent, respectively).

In 2021, GHG emissions were 12.6 million metric tons of CO_2e (3.4 percent) higher than 2020 (368.7 million metric tons of CO_2e), but 23.1 million metric tons of CO_2e (5.7 percent) lower than 2019 levels (404.4 million metric tons of CO_2e). Both the 2019 to 2020 decrease and the 2020 to 2021 increase in emissions are likely due in large part to the impacts of the COVID-19 pandemic that were felt globally. Emissions levels in 2020 are anomalous to the long-term trend, and the one-year increase from 2020 to 2021 should be considered in the broader context of the pandemic and subsequent economic recovery that took place over 2021.[35]

In the San Francisco Bay Area, the GHG emissions inventory prepared by the BAAQMD indicates that the transportation and industrial/commercial sectors represent the largest sources of GHG emissions, accounting for 39.7 percent and 35.7 percent, respectively, of the Bay Area's 86.6 million tons of CO_2e emissions in 2011. Electricity/co-generation sources account for approximately 14 percent of the Bay Area's GHG emissions, followed by residential fuel usage at approximately 7.7 percent. Off-road equipment sources currently account for approximately 1.5 percent of total Bay Area GHG emissions.[36]

Thresholds of Significance

CEQA Guidelines Appendix G includes a list of potentially significant project impacts. The project would have a GHG emissions impact if it would:

- Generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment.
- Conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing emissions of GHG.

Because the issue of global climate change is inherently a cumulative issue, the contribution of project GHG emissions to climate change is addressed as a cumulative impact. Some counties, cities, and air districts have developed guidance and thresholds for determining the significance of GHG emissions that occur within their jurisdiction. Valley Water is the CEQA Lead Agency for the project and is, therefore, responsible for determining whether GHG emissions with the project would have a cumulatively considerable contribution to climate change.

Valley Water has not formally adopted GHG emission significance thresholds. CEQA allows lead agencies to identify thresholds of significance applicable to a project that are supported by substantial evidence. Substantial evidence is defined in the CEQA statute to mean "facts, reasonable assumptions predicated

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[34] California Air Resources Board, *Emissions Trends Report 2000-2021 (2023 Edition)*, https://ww2.arb.ca.gov/ghg-inventory-data

[35] California Air Resources Board, *Emissions Trends Report 2000-2021 (2023 Edition)*, https://ww2.arb.ca.gov/ghg-inventory-data

[36] Bay Area Air Quality Management District, *Bay Area Emissions Inventory*, Adopted June 2011, Updated January 2015.

on facts, and expert opinion supported by facts" (14 CCR 15384(b)).[37] Substantial evidence can be in the form of technical studies, agency staff reports or opinions, expert opinions supported by facts, and prior CEQA assessments and planning documents.

This analysis relies on the following significance thresholds adopted by BAAQMD and Sacramento Metropolitan Air Quality Management District (SMAQMD) to determine if the project's GHG emissions would be cumulatively considerable:

- 1,100 metric tons of CO2e per year for construction emissions.[38]
- 10,000 metric tons of CO_2e per year for stationary source emissions.[39]
- 10,000 metric tons of CO_2e per year for operational emissions.[40]

Substantial evidence for use of a significance threshold of 1,100 metric tons of CO_2e per year for construction activities (construction equipment, material hauling, and construction worker trips) and a significance threshold of 10,000 metric tons of CO_2e per year for operations is provided in SMAQMD's *Greenhouse Gas Emission Thresholds for Sacramento County*. SMAQMD utilized guidance from the California Air Pollution Control Officers Association (CAPCOA) to develop thresholds that ensure 90 percent of emissions from proposed projects are reviewed to assess the need for mitigation measures. According to guidance from CAPCOA, reviewing 90 percent of emissions is sufficient to meet AB 32 goals.

BAAQMD adopted a significance threshold of 10,000 metric tons of CO_2e per year for stationary sources of GHG emissions. The BAAQMD also used CAPCOA's guidance of reviewing 90 percent of emissions from proposed projects to set their stationary source thresholds at 10,000 metric tons of CO_2e per year. Substantial evidence for using a threshold of 10,000 metric tons of CO_2e per year for stationary sources is provided in BAAQMD's *2022 CEQA Air Quality Guidelines*, *Appendix A: Threshold of Significance Justification*.

Project Greenhouse Gas Emissions

Construction of the project would generate GHG emissions from the combustion of fossil fuels associated with construction equipment, material hauling, and construction worker trips. Construction-related emissions were estimated using the CalEEMod (California Emissions Estimator Model Version

[37] 14 CCR 15384 provides the following discussion: "Substantial evidence" as used in the Guidelines is the same as the standard of review used by courts in reviewing agency decisions. Some cases suggest that a higher standard, the so called "fair argument standard" applies when a court is reviewing an agency's decision whether or not to prepare an EIR. Public Resources Code section 21082.2 was amended in 1993 (Chapter 1131) to provide that substantial evidence shall include "facts, reasonable assumptions predicated upon facts, and expert opinion supported by facts." The statute further provides that "argument, speculation, unsubstantiated opinion or narrative, evidence which is clearly inaccurate or erroneous, or evidence of social or economic impacts which do not contribute to, or are not caused by, physical impacts on the environment, is not substantial evidence."

[38] Sacramento Metropolitan Air Quality Management District, Guide to Air Quality Assessment in Sacramento County, June 2020, http://www.airquality.org/Residents/CEQA-Land-Use-Planning/CEQA-Guidance-Tools

[39] Bay Area Air Quality Management District, *2022 CEQA Air Quality Guidelines*, *Appendix A: Threshold of Significance Justification* https://www.baaqmd.gov/plans-and-climate/california-environmental-quality-act-ceqa/updated-ceqa-guidelines

[40] Sacramento Metropolitan Air Quality Management District, Guide to Air Quality Assessment in Sacramento County, June 2020, http://www.airquality.org/Residents/CEQA-Land-Use-Planning/CEQA-Guidance-Tools

2022.1.1.28). The project's estimated total construction GHG emissions are 218 metric tons of CO_2e (i.e., 150 metric tons of CO_2e in year 1 and 68 metric tons of CO_2e in year 2). As previously stated, BAAQMD recommends CEQA Lead Agencies estimate and disclose the construction-related GHG emissions of proposed projects but has not adopted numerical significance thresholds for construction-related emissions.

Since BAAQMD has not adopted numerical thresholds for construction-related emissions, the project's construction-related GHG emissions were compared to SMAQMD 's numerical significance threshold for the construction phase of all project types of 1,100 metric tons of CO_2e per year. As the project's estimated construction-related GHG emissions in both year 1 and year 2 are below the 1,100-metric-ton-per-year threshold, the project's construction-related GHG emissions would not be considered cumulatively considerable.

The project would increase the pumping capacity of the VPS due to the replacement of the two existing 200-hp pumps and two 400-hp pumps with four 600-hp pumps. To evaluate the project-related increase in GHG emissions from electrical power demand, the electrical power demand associated with operation of the existing pumps and the electrical power demand associated with operation of the new pumps was calculated.

To calculate the baseline electrical power demand associated with the existing pumps, total electrical power use between 2013 and 2022 for the VPS as a whole was averaged and then adjusted to represent only the electrical power consumed by the existing pumps. From 2013 through 2022, the existing pumps ran for a total of 3,744 hours over 156 days (an average of 374.4 hours per year). The 2013 to 2022 data indicates that the average hourly and average annual electrical power demand for the existing pumps is 462 kWh and 172,855 kWh, respectively.

For the future with-project scenario, three of the four new pumps (1,800 hp of the 2,400 hp) were assumed to operate at full load for 24 hours a day three months per year (2,160 hours per year). The estimated average hourly electrical power demand was estimated to be 1,342 kWh. The future with-project scenario would result in an average annual electricity demand of 2,898,720 kWh, or a project-related increase in annual electricity demand of 2,725,865 kWh.

The future with-project scenario assumes three pumps operating at full load and does not account for the state-of-the-art equipment and new pumps equipped with variable frequency drives that would improve energy efficiency, which would cause the anticipated increase in energy use (and GHG emissions) to be lower than reported.

The existing natural gas standby generator is 50 kW (67 hp) and is to be replaced with a 100 KW (134 hp) natural gas standby generator. A new 1,250 kW (1,676 hp) diesel standby generator would provide limited backup power for critical motor control and communications equipment in the event of power interruptions. The natural gas and diesel standby generators would be tested monthly for two hours, for a total of 24 hours per year. It was assumed that the standby generators would be operated for 76 hours a year during power outages (thus, a total of 100 hours per year per generator).

The evaluation of the project's operational GHG emissions considers direct emissions from the project's stationary sources as well as GHG emissions from electricity demand using numerical significance thresholds adopted by BAAQMD and SMAQMD. In all cases, the project's estimated emissions would be below the threshold. **Table 11: Project-Related Annual Operational Greenhouse Gas Emissions in 2025** displays the estimated GHG emissions increases associated with project operations.

As previously explained, the project is considered a stationary source due to permits needed from BAAQMD to install and operate the natural gas and diesel standby generators. As shown in **Table 11: Project-Related Annual Operational Greenhouse Gas Emissions in 2025**, the project would result in an estimated increase in direct GHG emissions of 66 metric tons of CO_2e per year from operation of the two standby generators, which is well below the BAAQMD's significance threshold of 10,000 metric tons of CO_2e per year for stationary sources.

To account for GHG emissions from electricity usage, consistent with SMAQMD's methodology for evaluating operational emissions, the sum of the project's direct annual operational emissions from stationary sources (66 metric tons of CO_2e per year) and the project's operational emissions associated with the electricity needed to operate the new pumps (255 metric tons CO_2e per year) was compared to the SMAQMD's operational significance threshold of 10,000 metric tons of CO_2e per year. The sum of these project emissions is 321 metric tons CO_2e per year, well below the 10,000-metric-ton-of-CO_2e-per-year threshold. Thus, the project's operational GHG emissions would not be considered cumulatively considerable.

Therefore, the project's impact related to direct and indirect GHG emissions would be less than significant. No mitigation is necessary.

Table 11: Project-Related Annual Operational Greenhouse Gas Emissions in 2025

Category	Project-Related Increase (metric tons of CO_2e per year)
Stationary Sources	66
Electricity Usage	255
Total Emissions	**321**
SMAQMD Threshold for Operations	10,000
Exceeds Threshold?	**No**

For informational purposes, CalEEMod incorporates GHG emission factors for Pacific Gas & Electric (PG&E). CalEEMod uses an intensity rate of 203 pounds of CO_2 per megawatt of electricity produced for PG&E. Notably, as of 2021, PG&E had decreased its carbon intensity to 98 pounds of CO_2 per megawatt of electricity produced (PG&E, 2021). By 2030, the intensity rates of approximately 82 pounds of CO_2 per megawatt of electricity produced for PG&E are based on Renewable Portfolio Standard (RPS) mandates. A renewable portfolio standard is a regulatory mandate to increase production of energy from renewable sources such as wind, solar, biomass and other alternatives to fossil and nuclear electric generation. The electricity delivered by PG&E and consumed by the project would be subject to SB 100 and the state's RPS, which requires increasing renewable energy to 60 percent by 2030 and 100 percent by 2045.

Therefore, by 2030, project operations would emit 168 metric tons of CO_2e and by 2045, project operations would emit 66 metric tons of CO_2e as a result of lower intensity rates for electrical usage while still accounting for the generator fuel usage.

Consistency with State and Local GHG Reduction Plans

In 2021, Valley Water published a CCAP. The CCAP is a district-wide plan to reduce GHG emissions that is not applicable to individual projects.

The 2022 Scoping Plan is implemented at the State level, and compliance at a specific plan or project level is not addressed in the Plan. The project would use vehicles and equipment that would meet current standards at the time of construction and operation and would not conflict with the statewide programs designed to address GHG emissions reduction goals. The project would not conflict with any applicable plan, policy, or regulation of an agency adopted for the purpose of reducing GHG emissions and would have a less than significant impact on GHG emissions.

12.0 SUMMARY

In summary, daily construction emissions would not exceed the significance thresholds, as described in **Section 6**. These impacts are largely due to off-road construction equipment and to a much lesser degree due to off-site construction haul trucks. Construction emissions would be less than significant. Once operational, the project would result in less than significant impacts of criteria air pollutants (**Section 7**). Odor impacts (**Section 8**) and cumulative impacts (**Section 9**) would be less than significant. The health impacts due to construction activities at nearby existing residences would also be less than significant with mitigation (**Section 10**). GHG emissions would also be less than significant (**Section 11**). Therefore, the project would have a less than significant impact on air quality and GHG emissions.

Attachment A

Construction and Operational Emissions

CalEEMod Input Summary

CalEEMod Output Files

- Baseline Condition
- Future Condition

Energy Demand Calculations

Valley Water Vasona Pumping Plant Upgrades

CalEEMod Version 2022.1.1.28 Inputs

Project Characteristics

Start of Construction: January 16, 2025

End of Construction: June 30, 2026

Operational Year: 2025

Location: Santa Clara County

Air District: Bay Area Air Quality Management District

Utility Company: Pacific Gas & Electric (Electricity)

Land Use Setting: Suburban

Construction Specifics

No buildings will be demolished.

On-site construction activities are anticipated to begin in 2025 and extend for approximately 18 months. An estimated 254 cubic yards of spoils requiring offsite disposal would be generated during construction, and 210 cubic yards of fill would be imported to the site. Project construction would result in a total of 0.153 acres (approximately 6,659 square feet) of ground disturbance at the project site. Implementation of the project would result in the creation and/or replacement of 5,175 square feet of impervious surfaces, resulting in an 869-square-foot net increase in impervious surfaces at the Vasona Pump Station (VPS).

Construction activities will occur between 7 am and 7 pm Monday through Friday.

Operational Specifics

The existing natural gas standby generator is 50 kW (67 hp) which is to be replaced with a 100 KW (134 hp) natural gas standby generator. A new 1,250 kW (1,676 hp) diesel standby generator would provide backup power for critical equipment in the event of power interruptions. The standby generators would be tested monthly for two hours. The diesel standby generator would be Tier-4 rated. It was assumed that the standby generators would be operated for 76 hours a year during power outages (thus, a total of 100 hours per year).

The project would increase the pumping capacity of the VPS due to the replacement of the two existing 200-hp pumps and two 400-hp pumps with four 600-hp pumps. To estimate energy demand associated with future operation of the new pumps, historical data on energy use between 2013 and 2022 for the existing VPS was averaged and adjusted to remove baseline power requirements. Historical VPS data indicates that the average hourly energy demand for the existing VPS is 462 kWh.

Project demand was calculated for hourly energy consumption for the new pump configuration versus the existing pumps based on a maximum of three new pumps running concurrently, which would be the worst-case scenario, and would result in a net increase of 880 kWh from baseline conditions, for a total of 1,342 kWh.

From 2013 through 2022, the existing pumps ran for a total of 3,744 hours (over 156 days). Therefore, the existing pumps ran for an average of 374 hours per year based on data from 2013 through 2022. This result would result in an annual electrical usage of 172,855 kWh for the baseline condition, 502,542 kW for the future condition with the Project or a Project-related increase in annual electrical usage of 329,687 kWh.

As a worst-case scenario, the proposed pumps were assumed to operate for approximately two to three months per year and 24 hours per day (i.e., 2,160 hours). This situation would result in an annual electrical usage of 2,898,720 kWh for the future condition with the Project or a Project-related increase in annual electrical usage of 2,725,865 kWh, which also accounts for the condition that pump capacity increases by 1,800 hp as a result of the Project.

Notably, the net demand and energy consumption increase would not be anticipated to be the full load. The proposed pumps are state-of-the-art equipment and equipped with variable frequency drives that would improve energy efficiency, which would cause the anticipated increase in energy use to be lower.

On-Road fugitive dust inputs left as default.

Utility Information

Greenhouse Gas intensity factor: 203 lbs of CO_2e per MWh (Pacific Gas & Electric)

Estimated Construction Schedule

Description	Start	End	Working Days
Site Preparation	1/16/2025	1/17/2025	1
Grading	1/18/2025	1/20/2025	2
Building Construction	1/21/2025	5/11/2026	340
Paving	5/12/2026	6/15/2026	25
Architectural Coating	6/17/2026	6/30/2026	10

SOURCE: CARB CalEEMod Version 2022.1.

Estimated Construction Equipment Usage

Phase	Equipment	Amount	Daily Hours	HP	Load Factor
Site Preparation	Graders	1	8	148	0.41
Site Preparation	Tractors/Loaders/Backhoes	1	8	84	0.37
Grading	Graders	1	6	148	0.41
Grading	Rubber Tired Dozers	1	6	367	0.4
Grading	Tractors/Loaders/Backhoes	1	7	84	0.37
Building Construction	Cranes	1	4	367	0.29
Building Construction	Forklifts	2	6	82	0.20
Building Construction	Tractors/Loaders/Backhoes	2	8	84	0.37
Building Construction	Generator Sets	2	8	50	0.74
Paving	Cement and Mortar Mixers	4	6	10	0.56
Paving	Pavers	1	7	81	0.42
Paving	Rollers	1	7	36	0.38
Paving	Tractors/Loaders/Backhoes	1	7	84	0.37
Architectural Coating	Air Compressors	1	6	37	0.48

SOURCE: CARB CalEEMod Version 2022.1.

Valley Water Vasona Pumping Plant Upgrades - Baseline Custom Report

Table of Contents

1. Basic Project Information

1.1. Basic Project Information

Data Field	Value
Project Name	Valley Water Vasona Pumping Plant Upgrades - Baseline
Operational Year	2025
Lead Agency	Santa Clara Valley Water District
Land Use Scale	Project/site
Analysis Level for Defaults	County
Windspeed (m/s)	3.40
Precipitation (days)	1.60
Location	37.39894672340154, -121.83457964987804
County	Santa Clara
City	San Jose
Air District	Bay Area AQMD
Air Basin	San Francisco Bay Area
TAZ	1991
EDFZ	1
Electric Utility	Pacific Gas & Electric Company
Gas Utility	Pacific Gas & Electric
App Version	2022.1.1.28

1.2. Land Use Types

Land Use Subtype	Size	Unit	Lot Acreage	Building Area (sq ft)	Landscape Area (sq ft)	Special Landscape Area (sq ft)	Population	Description
General Light Industry	1.05	1000sqft	0.15	1,055	0.00	—	—	—

1.3. User-Selected Emission Reduction Measures by Emissions Sector

No measures selected

2. Emissions Summary

2.4. Operations Emissions Compared Against Thresholds

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Un/Mit.	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.27	1.20	0.11	3.07	< 0.005	0.01	0.00	0.01	0.01	0.00	0.01	1.17	173	174	0.29	< 0.005	0.27	182
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.27	1.20	0.11	3.07	< 0.005	0.01	0.00	0.01	0.01	0.00	0.01	1.17	173	174	0.29	< 0.005	0.27	182
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.06	0.18	0.02	0.42	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.00	< 0.005	1.17	108	109	0.16	< 0.005	0.27	114
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.01	0.03	< 0.005	0.08	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.00	< 0.005	0.19	17.8	18.0	0.03	< 0.005	0.05	18.9

2.5. Operations Emissions by Sector, Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Sector	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Area	0.02	0.02	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Energy	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	96.6	96.6	0.02	< 0.005	—	97.6
Water	—	—	—	—	—	—	—	—	—	—	—	0.47	0.88	1.35	0.05	< 0.005	—	2.90
Waste	—	—	—	—	—	—	—	—	—	—	—	0.71	0.00	0.71	0.07	0.00	—	2.47
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.27	0.27
Stationary	0.25	1.18	0.11	3.07	< 0.005	0.01	0.00	0.01	0.01	0.00	0.01	0.00	75.3	75.3	0.16	0.00	0.00	79.3
Total	0.27	1.20	0.11	3.07	< 0.005	0.01	0.00	0.01	0.01	0.00	0.01	1.17	173	174	0.29	< 0.005	0.27	182
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Area	0.02	0.02	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Energy	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	96.6	96.6	0.02	< 0.005	—	97.6
Water	—	—	—	—	—	—	—	—	—	—	—	0.47	0.88	1.35	0.05	< 0.005	—	2.90
Waste	—	—	—	—	—	—	—	—	—	—	—	0.71	0.00	0.71	0.07	0.00	—	2.47
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.27	0.27
Stationary	0.25	1.18	0.11	3.07	< 0.005	0.01	0.00	0.01	0.01	0.00	0.01	0.00	75.3	75.3	0.16	0.00	0.00	79.3
Total	0.27	1.20	0.11	3.07	< 0.005	0.01	0.00	0.01	0.01	0.00	0.01	1.17	173	174	0.29	< 0.005	0.27	182
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Area	0.02	0.02	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Energy	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	96.6	96.6	0.02	< 0.005	—	97.6
Water	—	—	—	—	—	—	—	—	—	—	—	0.47	0.88	1.35	0.05	< 0.005	—	2.90
Waste	—	—	—	—	—	—	—	—	—	—	—	0.71	0.00	0.71	0.07	0.00	—	2.47
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.27	0.27
Stationary	0.03	0.16	0.02	0.42	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.00	< 0.005	0.00	10.3	10.3	0.02	0.00	0.00	10.9
Total	0.06	0.18	0.02	0.42	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.00	< 0.005	1.17	108	109	0.16	< 0.005	0.27	114

Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Area	< 0.005	< 0.005	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Energy	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	16.0	16.0	< 0.005	< 0.005	—	16.2
Water	—	—	—	—	—	—	—	—	—	—	—	0.08	0.15	0.22	0.01	< 0.005	—	0.48
Waste	—	—	—	—	—	—	—	—	—	—	—	0.12	0.00	0.12	0.01	0.00	—	0.41
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.05	0.05
Stationary	0.01	0.03	< 0.005	0.08	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.00	< 0.005	0.00	1.71	1.71	< 0.005	0.00	0.00	1.80
Total	0.01	0.03	< 0.005	0.08	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.00	< 0.005	0.19	17.8	18.0	0.03	< 0.005	0.05	18.9

4. Operations Emissions Details

4.1. Mobile Emissions by Land Use

4.1.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Total	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Total	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Total	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

4.2. Energy

4.2.1. Electricity Emissions By Land Use - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	—	—	—	—	—	—	—	—	—	—	—	—	96.6	96.6	0.02	< 0.005	—	97.6
Total	—	—	—	—	—	—	—	—	—	—	—	—	96.6	96.6	0.02	< 0.005	—	97.6
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	—	—	—	—	—	—	—	—	—	—	—	—	96.6	96.6	0.02	< 0.005	—	97.6
Total	—	—	—	—	—	—	—	—	—	—	—	—	96.6	96.6	0.02	< 0.005	—	97.6
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	—	—	—	—	—	—	—	—	—	—	—	—	16.0	16.0	< 0.005	< 0.005	—	16.2
Total	—	—	—	—	—	—	—	—	—	—	—	—	16.0	16.0	< 0.005	< 0.005	—	16.2

4.2.3. Natural Gas Emissions By Land Use - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Total	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Total	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Total	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00

4.3. Area Emissions by Source

4.3.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Source	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Consumer	0.02	0.02	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	0.02	0.02	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	0.02	0.02	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	0.02	0.02	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	< 0.005	< 0.005	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	< 0.005	< 0.005	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.4. Water Emissions by Land Use

4.4.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	—	—	—	—	—	—	—	—	—	—	—	0.47	0.88	1.35	0.05	< 0.005	—	2.90
Total	—	—	—	—	—	—	—	—	—	—	—	0.47	0.88	1.35	0.05	< 0.005	—	2.90
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	—	—	—	—	—	—	—	—	—	—	—	0.47	0.88	1.35	0.05	< 0.005	—	2.90
Total	—	—	—	—	—	—	—	—	—	—	—	0.47	0.88	1.35	0.05	< 0.005	—	2.90
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	—	—	—	—	—	—	—	—	—	—	—	0.08	0.15	0.22	0.01	< 0.005	—	0.48
Total	—	—	—	—	—	—	—	—	—	—	—	0.08	0.15	0.22	0.01	< 0.005	—	0.48

4.5. Waste Emissions by Land Use

4.5.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	—	—	—	—	—	—	—	—	—	—	—	0.71	0.00	0.71	0.07	0.00	—	2.47

Total	—	—	—	—	—	—	—	—	—	—	—	0.71	0.00	0.71	0.07	0.00	—	2.47
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	—	—	—	—	—	—	—	—	—	—	—	0.71	0.00	0.71	0.07	0.00	—	2.47
Total	—	—	—	—	—	—	—	—	—	—	—	0.71	0.00	0.71	0.07	0.00	—	2.47
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	—	—	—	—	—	—	—	—	—	—	—	0.12	0.00	0.12	0.01	0.00	—	0.41
Total	—	—	—	—	—	—	—	—	—	—	—	0.12	0.00	0.12	0.01	0.00	—	0.41

4.6. Refrigerant Emissions by Land Use

4.6.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.27	0.27
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.27	0.27
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.27	0.27
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.27	0.27

Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.05	0.05
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.05	0.05

4.7. Offroad Emissions By Equipment Type

4.7.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.8. Stationary Emissions By Equipment Type

4.8.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Emergency Generator	0.25	1.18	0.11	3.07	< 0.005	0.01	0.00	0.01	0.01	0.00	0.01	0.00	75.3	75.3	0.16	0.00	0.00	79.3
Total	0.25	1.18	0.11	3.07	< 0.005	0.01	0.00	0.01	0.01	0.00	0.01	0.00	75.3	75.3	0.16	0.00	0.00	79.3
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Emergency Generator	0.25	1.18	0.11	3.07	< 0.005	0.01	0.00	0.01	0.01	0.00	0.01	0.00	75.3	75.3	0.16	0.00	0.00	79.3
Total	0.25	1.18	0.11	3.07	< 0.005	0.01	0.00	0.01	0.01	0.00	0.01	0.00	75.3	75.3	0.16	0.00	0.00	79.3
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Emergency Generator	0.01	0.03	< 0.005	0.08	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.00	< 0.005	0.00	1.71	1.71	< 0.005	0.00	0.00	1.80
Total	0.01	0.03	< 0.005	0.08	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.00	< 0.005	0.00	1.71	1.71	< 0.005	0.00	0.00	1.80

4.9. User Defined Emissions By Equipment Type

4.9.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10. Soil Carbon Accumulation By Vegetation Type

4.10.1. Soil Carbon Accumulation By Vegetation Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Vegetation	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.2. Above and Belowground Carbon Accumulation by Land Use Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.3. Avoided and Sequestered Emissions by Species - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Species	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

5. Activity Data

5.9. Operational Mobile Sources

5.9.1. Unmitigated

Land Use Type	Trips/Weekday	Trips/Saturday	Trips/Sunday	Trips/Year	VMT/Weekday	VMT/Saturday	VMT/Sunday	VMT/Year
General Light Industry	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

5.10. Operational Area Sources

5.10.1. Hearths

5.10.1.1. Unmitigated

5.10.2. Architectural Coatings

Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)
0	0.00	1,583	528	—

5.10.3. Landscape Equipment

Equipment Type	Fuel Type	Number Per Day	Hours per Day	Hours per Year	Horsepower	Load Factor

5.11. Operational Energy Consumption

5.11.1. Unmitigated

Electricity (kWh/yr) and CO2 and CH4 and N2O and Natural Gas (kBTU/yr)

Land Use	Electricity (kWh/yr)	CO2	CH4	N2O	Natural Gas (kBTU/yr)
General Light Industry	172,855	204	0.0330	0.0040	0.00

5.12. Operational Water and Wastewater Consumption

5.12.1. Unmitigated

Land Use	Indoor Water (gal/year)	Outdoor Water (gal/year)
General Light Industry	243,969	0.00

5.13. Operational Waste Generation

5.13.1. Unmitigated

Land Use	Waste (ton/year)	Cogeneration (kWh/year)
General Light Industry	1.31	—

5.14. Operational Refrigeration and Air Conditioning Equipment

5.14.1. Unmitigated

Land Use Type	Equipment Type	Refrigerant	GWP	Quantity (kg)	Operations Leak Rate	Service Leak Rate	Times Serviced
General Light Industry	Other commercial A/C and heat pumps	R-410A	2,088	0.30	4.00	4.00	18.0

5.15. Operational Off-Road Equipment

5.15.1. Unmitigated

Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor

5.16. Stationary Sources

5.16.1. Emergency Generators and Fire Pumps

Equipment Type	Fuel Type	Number per Day	Hours per Day	Hours per Year	Horsepower	Load Factor
Emergency Generator	CNG	1.00	2.00	100	67.0	0.73

5.16.2. Process Boilers

Equipment Type	Fuel Type	Number	Boiler Rating (MMBtu/hr)	Daily Heat Input (MMBtu/day)	Annual Heat Input (MMBtu/yr)

5.17. User Defined

Equipment Type	Fuel Type

5.18. Vegetation

5.18.1. Land Use Change

5.18.1.1. Unmitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres

5.18.1. Biomass Cover Type

5.18.1.1. Unmitigated

Biomass Cover Type	Initial Acres	Final Acres

5.18.2. Sequestration

5.18.2.1. Unmitigated

Tree Type	Number	Electricity Saved (kWh/year)	Natural Gas Saved (btu/year)

6. Climate Risk Detailed Report

6.1. Climate Risk Summary

Cal-Adapt midcentury 2040–2059 average projections for four hazards are reported below for your project location. These are under Representation Concentration Pathway (RCP) 8.5 which assumes GHG emissions will continue to rise strongly through 2050 and then plateau around 2100.

Climate Hazard	Result for Project Location	Unit
Temperature and Extreme Heat	13.3	annual days of extreme heat
Extreme Precipitation	2.70	annual days with precipitation above 20 mm
Sea Level Rise	—	meters of inundation depth
Wildfire	14.4	annual hectares burned

Temperature and Extreme Heat data are for grid cell in which your project are located. The projection is based on the 98th historical percentile of daily maximum/minimum temperatures from observed historical data (32 climate model ensemble from Cal-Adapt, 2040–2059 average under RCP 8.5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Extreme Precipitation data are for the grid cell in which your project are located. The threshold of 20 mm is equivalent to about ¾ an inch of rain, which would be light to moderate rainfall if received over a full day or heavy rain if received over a period of 2 to 4 hours. Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Sea Level Rise data are for the grid cell in which your project are located. The projections are from Radke et al. (2017), as reported in Cal-Adapt (Radke et al., 2017, CEC-500-2017-008), and consider inundation location and depth for the San Francisco Bay, the Sacramento-San Joaquin River Delta and California coast resulting different increments of sea level rise coupled with extreme storm events. Users may select from four scenarios to view the range in potential inundation depth for the grid cell. The four scenarios are: No rise, 0.5 meter, 1.0 meter, 1.41 meters

Wildfire data are for the grid cell in which your project are located. The projections are from UC Davis, as reported in Cal-Adapt (2040–2059 average under RCP 8.5), and consider historical data of climate, vegetation, population density, and large (> 400 ha) fire history. Users may select from four model simulations to view the range in potential wildfire probabilities for the grid cell. The four simulations make different assumptions about expected rainfall and temperature are: Warmer/drier (HadGEM2-ES), Cooler/wetter (CNRM-CM5), Average conditions (CanESM2), Range of different rainfall and temperature possibilities (MIROC5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.

6.2. Initial Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	N/A	N/A	N/A	N/A
Extreme Precipitation	1	0	0	N/A
Sea Level Rise	1	0	0	N/A
Wildfire	1	0	0	N/A
Flooding	N/A	N/A	N/A	N/A
Drought	N/A	N/A	N/A	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	0	0	0	N/A

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores do not include implementation of climate risk reduction measures.

6.3. Adjusted Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	N/A	N/A	N/A	N/A
Extreme Precipitation	1	1	1	2
Sea Level Rise	1	1	1	2
Wildfire	1	1	1	2
Flooding	N/A	N/A	N/A	N/A
Drought	N/A	N/A	N/A	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	1	1	1	2

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores include implementation of climate risk reduction measures.

7. Health and Equity Details

7.1. CalEnviroScreen 4.0 Scores

The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Exposure Indicators	—
AQ-Ozone	22.2
AQ-PM	13.0
AQ-DPM	2.55
Drinking Water	31.3
Lead Risk Housing	20.1
Pesticides	0.00
Toxic Releases	27.6
Traffic	9.13
Effect Indicators	—
CleanUp Sites	17.1
Groundwater	0.00
Haz Waste Facilities/Generators	16.6
Impaired Water Bodies	0.00
Solid Waste	0.00
Sensitive Population	—
Asthma	26.4
Cardio-vascular	35.7
Low Birth Weights	53.5

Socioeconomic Factor Indicators	—
Education	51.0
Housing	37.5
Linguistic	74.8
Poverty	30.5
Unemployment	66.6

7.2. Healthy Places Index Scores

The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Economic	—
Above Poverty	83.11305017
Employed	80.26433979
Median HI	93.27601694
Education	—
Bachelor's or higher	74.16912614
High school enrollment	100
Preschool enrollment	95.7141024
Transportation	—
Auto Access	42.10188631
Active commuting	30.20659566
Social	—
2-parent households	89.50340049
Voting	78.94264083
Neighborhood	—
Alcohol availability	68.67701784
Park access	25.8052098
Retail density	16.47632491

Supermarket access	2.399589375
Tree canopy	69.35711536
Housing	—
Homeownership	90.85076351
Housing habitability	81.71435904
Low-inc homeowner severe housing cost burden	69.97305274
Low-inc renter severe housing cost burden	31.52829462
Uncrowded housing	90.74810728
Health Outcomes	—
Insured adults	97.93404337
Arthritis	39.1
Asthma ER Admissions	74.9
High Blood Pressure	16.4
Cancer (excluding skin)	24.3
Asthma	92.9
Coronary Heart Disease	47.4
Chronic Obstructive Pulmonary Disease	76.7
Diagnosed Diabetes	47.0
Life Expectancy at Birth	94.0
Cognitively Disabled	60.3
Physically Disabled	91.7
Heart Attack ER Admissions	57.2
Mental Health Not Good	91.8
Chronic Kidney Disease	45.1
Obesity	93.1
Pedestrian Injuries	54.6
Physical Health Not Good	78.6
Stroke	58.2

Health Risk Behaviors	—
Binge Drinking	95.9
Current Smoker	94.0
No Leisure Time for Physical Activity	65.2
Climate Change Exposures	—
Wildfire Risk	0.3
SLR Inundation Area	0.0
Children	90.2
Elderly	18.2
English Speaking	27.9
Foreign-born	67.0
Outdoor Workers	80.9
Climate Change Adaptive Capacity	—
Impervious Surface Cover	83.8
Traffic Density	5.1
Traffic Access	64.1
Other Indices	—
Hardship	16.3
Other Decision Support	—
2016 Voting	81.1

7.3. Overall Health & Equity Scores

Metric	Result for Project Census Tract
CalEnviroScreen 4.0 Score for Project Location (a)	7.00
Healthy Places Index Score for Project Location (b)	90.0
Project Located in a Designated Disadvantaged Community (Senate Bill 535)	No
Project Located in a Low-Income Community (Assembly Bill 1550)	No
Project Located in a Community Air Protection Program Community (Assembly Bill 617)	No

a: The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.
b: The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

7.4. Health & Equity Measures

No Health & Equity Measures selected.

7.5. Evaluation Scorecard

Health & Equity Evaluation Scorecard not completed.

7.6. Health & Equity Custom Measures

No Health & Equity Custom Measures created.

8. User Changes to Default Data

Screen	Justification
Construction: Paving	GIS maps
Operations: Energy Use	Project Description
Land Use	Project Description
Operations: Vehicle Data	No increase in employees
Operations: Emergency Generators and Fire Pumps	Project Description:
Operations: Architectural Coatings	Baseline Conditions

Valley Water Vasona Pumping Plant Upgrades - Future Custom Report

Table of Contents

1. Basic Project Information

1.1. Basic Project Information

Data Field	Value
Project Name	Valley Water Vasona Pumping Plant Upgrades - Future
Construction Start Date	1/1/2025
Operational Year	2025
Lead Agency	Santa Clara Valley Water District
Land Use Scale	Project/site
Analysis Level for Defaults	County
Windspeed (m/s)	3.40
Precipitation (days)	1.60
Location	37.39894672340154, -121.83457964987804
County	Santa Clara
City	San Jose
Air District	Bay Area AQMD
Air Basin	San Francisco Bay Area
TAZ	1991
EDFZ	1
Electric Utility	Pacific Gas & Electric Company
Gas Utility	Pacific Gas & Electric
App Version	2022.1.1.28

1.2. Land Use Types

Land Use Subtype	Size	Unit	Lot Acreage	Building Area (sq ft)	Landscape Area (sq ft)	Special Landscape Area (sq ft)	Population	Description
General Light Industry	1.05	1000sqft	0.15	1,055	0.00	—	—	—

Other Non-Asphalt Surfaces	5.17	1000sqft	0.12	0.00	0.00	—	—	—

1.3. User-Selected Emission Reduction Measures by Emissions Sector

Sector	#	Measure Title
Construction	C-2*	Limit Heavy-Duty Diesel Vehicle Idling
Construction	C-5	Use Advanced Engine Tiers
Construction	C-10-A	Water Exposed Surfaces
Construction	C-10-B	Water Active Demolition Sites
Construction	C-10-C	Water Unpaved Construction Roads
Construction	C-11	Limit Vehicle Speeds on Unpaved Roads
Construction	C-12	Sweep Paved Roads

* Qualitative or supporting measure. Emission reductions not included in the mitigated emissions results.

2. Emissions Summary

2.1. Construction Emissions Compared Against Thresholds

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Un/Mit.	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	1.39	1.37	9.69	11.9	0.02	0.34	0.14	0.34	0.31	0.03	0.31	—	2,055	2,055	0.08	0.02	0.54	2,062
Mit.	1.27	1.27	4.23	13.0	0.01	0.06	0.14	0.21	0.06	0.03	0.09	—	1,313	1,313	0.05	0.01	0.54	1,318
% Reduced	9%	7%	56%	-9%	44%	82%	—	40%	82%	—	71%	—	36%	36%	36%	29%	—	36%
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	1.32	1.11	10.1	11.9	0.02	0.46	5.37	5.84	0.43	2.58	3.01	—	3,191	3,191	0.23	0.37	0.13	3,308

Mit.	0.34	0.24	4.23	12.9	0.02	0.06	2.13	2.17	0.04	1.02	1.05	—	3,191	3,191	0.23	0.37	0.13	3,308
% Reduced	74%	78%	58%	-9%	—	87%	60%	63%	90%	61%	65%	—	—	—	—	—	—	—
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.82	0.68	6.62	8.09	0.01	0.23	0.04	0.27	0.21	0.02	0.23	—	1,406	1,406	0.06	0.01	0.02	1,411
Mit.	0.17	0.17	2.87	8.82	0.01	0.03	0.02	0.04	0.03	0.01	0.03	—	905	905	0.04	0.01	0.02	908
% Reduced	80%	76%	57%	-9%	44%	89%	52%	84%	88%	56%	86%	—	36%	36%	35%	32%	—	36%
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.15	0.12	1.21	1.48	< 0.005	0.04	0.01	0.05	0.04	< 0.005	0.04	—	233	233	0.01	< 0.005	< 0.005	234
Mit.	0.03	0.03	0.52	1.61	< 0.005	< 0.005	< 0.005	0.01	< 0.005	< 0.005	0.01	—	150	150	0.01	< 0.005	< 0.005	150
% Reduced	80%	76%	57%	-9%	44%	89%	52%	84%	88%	56%	86%	—	36%	36%	35%	32%	—	36%

2.2. Construction Emissions by Year, Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Year	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	1.20	1.00	9.69	11.9	0.02	0.34	< 0.005	0.34	0.31	< 0.005	0.31	—	2,055	2,055	0.08	0.02	0.03	2,062
2026	1.39	1.37	9.23	11.8	0.02	0.29	0.14	0.32	0.27	0.03	0.27	—	2,055	2,055	0.08	0.02	0.54	2,062
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	1.32	1.11	10.1	11.9	0.02	0.46	5.37	5.84	0.43	2.58	3.01	—	3,191	3,191	0.23	0.37	0.13	3,308
2026	1.12	0.94	9.23	11.8	0.02	0.29	< 0.005	0.30	0.27	< 0.005	0.27	—	2,054	2,054	0.08	0.02	< 0.005	2,062
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

2025	0.82	0.68	6.62	8.09	0.01	0.23	0.04	0.27	0.21	0.02	0.23	—	1,406	1,406	0.06	0.01	0.01	1,411
2026	0.37	0.31	2.68	3.46	0.01	0.09	0.01	0.10	0.08	< 0.005	0.08	—	596	596	0.02	0.01	0.02	598
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	0.15	0.12	1.21	1.48	< 0.005	0.04	0.01	0.05	0.04	< 0.005	0.04	—	233	233	0.01	< 0.005	< 0.005	234
2026	0.07	0.06	0.49	0.63	< 0.005	0.02	< 0.005	0.02	0.01	< 0.005	0.02	—	98.7	98.7	< 0.005	< 0.005	< 0.005	99.1

2.3. Construction Emissions by Year, Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Year	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	0.24	0.24	4.23	13.0	0.01	0.04	< 0.005	0.04	0.04	< 0.005	0.04	—	1,313	1,313	0.05	0.01	0.03	1,318
2026	1.27	1.27	4.22	13.0	0.01	0.06	0.14	0.21	0.06	0.03	0.09	—	1,313	1,313	0.05	0.01	0.54	1,318
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	0.34	0.24	4.23	12.9	0.02	0.06	2.13	2.17	0.04	1.02	1.05	—	3,191	3,191	0.23	0.37	0.13	3,308
2026	0.24	0.24	4.23	12.9	0.01	0.04	< 0.005	0.04	0.04	< 0.005	0.04	—	1,313	1,313	0.05	0.01	< 0.005	1,317
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	0.17	0.17	2.87	8.82	0.01	0.03	0.02	0.04	0.03	0.01	0.03	—	905	905	0.04	0.01	0.01	908
2026	0.12	0.12	1.25	3.76	< 0.005	0.01	0.01	0.03	0.01	< 0.005	0.02	—	406	406	0.02	< 0.005	0.02	408
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	0.03	0.03	0.52	1.61	< 0.005	< 0.005	< 0.005	0.01	< 0.005	< 0.005	0.01	—	150	150	0.01	< 0.005	< 0.005	150
2026	0.02	0.02	0.23	0.69	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	67.2	67.2	< 0.005	< 0.005	< 0.005	67.5

2.4. Operations Emissions Compared Against Thresholds

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Un/Mit.	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	6.57	7.89	24.8	20.2	0.03	0.82	0.00	0.82	0.82	0.00	0.82	1.17	4,586	4,587	0.81	0.05	0.27	4,624
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	6.56	7.88	24.8	20.2	0.03	0.82	0.00	0.82	0.82	0.00	0.82	1.17	4,586	4,587	0.81	0.05	0.27	4,624
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.93	1.11	3.40	2.79	< 0.005	0.11	0.00	0.11	0.11	0.00	0.11	1.17	2,027	2,028	0.44	0.04	0.27	2,050
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.17	0.20	0.62	0.51	< 0.005	0.02	0.00	0.02	0.02	0.00	0.02	0.19	336	336	0.07	0.01	0.05	339

2.5. Operations Emissions by Sector, Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Sector	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Area	0.03	0.03	< 0.005	0.05	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.19	0.19	< 0.005	< 0.005	—	0.19
Energy	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	1,620	1,620	0.26	0.03	—	1,636
Water	—	—	—	—	—	—	—	—	—	—	—	0.47	0.88	1.35	0.05	< 0.005	—	2.90
Waste	—	—	—	—	—	—	—	—	—	—	—	0.71	0.00	0.71	0.07	0.00	—	2.47
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.27	0.27
Stationary	6.53	7.86	24.8	20.2	0.03	0.82	0.00	0.82	0.82	0.00	0.82	0.00	2,965	2,965	0.43	0.02	0.00	2,982
Total	6.57	7.89	24.8	20.2	0.03	0.82	0.00	0.82	0.82	0.00	0.82	1.17	4,586	4,587	0.81	0.05	0.27	4,624

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Area	0.03	0.03	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Energy	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	1,620	1,620	0.26	0.03	—	1,636
Water	—	—	—	—	—	—	—	—	—	—	—	0.47	0.88	1.35	0.05	< 0.005	—	2.90
Waste	—	—	—	—	—	—	—	—	—	—	—	0.71	0.00	0.71	0.07	0.00	—	2.47
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.27	0.27
Stationary	6.53	7.86	24.8	20.2	0.03	0.82	0.00	0.82	0.82	0.00	0.82	0.00	2,965	2,965	0.43	0.02	0.00	2,982
Total	6.56	7.88	24.8	20.2	0.03	0.82	0.00	0.82	0.82	0.00	0.82	1.17	4,586	4,587	0.81	0.05	0.27	4,624
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Area	0.03	0.03	< 0.005	0.02	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.09	0.09	< 0.005	< 0.005	—	0.09
Energy	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	1,620	1,620	0.26	0.03	—	1,636
Water	—	—	—	—	—	—	—	—	—	—	—	0.47	0.88	1.35	0.05	< 0.005	—	2.90
Waste	—	—	—	—	—	—	—	—	—	—	—	0.71	0.00	0.71	0.07	0.00	—	2.47
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.27	0.27
Stationary	0.90	1.08	3.40	2.76	< 0.005	0.11	0.00	0.11	0.11	0.00	0.11	0.00	406	406	0.06	< 0.005	0.00	408
Total	0.93	1.11	3.40	2.79	< 0.005	0.11	0.00	0.11	0.11	0.00	0.11	1.17	2,027	2,028	0.44	0.04	0.27	2,050
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Area	0.01	0.01	< 0.005	< 0.005	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.02	0.02	< 0.005	< 0.005	—	0.02
Energy	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	268	268	0.04	0.01	—	271
Water	—	—	—	—	—	—	—	—	—	—	—	0.08	0.15	0.22	0.01	< 0.005	—	0.48
Waste	—	—	—	—	—	—	—	—	—	—	—	0.12	0.00	0.12	0.01	0.00	—	0.41
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.05	0.05

Stationa	0.16	0.20	0.62	0.50	< 0.005	0.02	0.00	0.02	0.02	0.00	0.02	0.00	67.2	67.2	0.01	< 0.005	0.00	67.6
Total	0.17	0.20	0.62	0.51	< 0.005	0.02	0.00	0.02	0.02	0.00	0.02	0.19	336	336	0.07	0.01	0.05	339

2.6. Operations Emissions by Sector, Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Sector	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Area	0.03	0.03	< 0.005	0.05	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.19	0.19	< 0.005	< 0.005	—	0.19
Energy	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	1,620	1,620	0.26	0.03	—	1,636
Water	—	—	—	—	—	—	—	—	—	—	—	0.47	0.88	1.35	0.05	< 0.005	—	2.90
Waste	—	—	—	—	—	—	—	—	—	—	—	0.71	0.00	0.71	0.07	0.00	—	2.47
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.27	0.27
Stationa ry	6.53	7.86	24.8	20.2	0.03	0.82	0.00	0.82	0.82	0.00	0.82	0.00	2,965	2,965	0.43	0.02	0.00	2,982
Total	6.57	7.89	24.8	20.2	0.03	0.82	0.00	0.82	0.82	0.00	0.82	1.17	4,586	4,587	0.81	0.05	0.27	4,624
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Area	0.03	0.03	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Energy	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	1,620	1,620	0.26	0.03	—	1,636
Water	—	—	—	—	—	—	—	—	—	—	—	0.47	0.88	1.35	0.05	< 0.005	—	2.90
Waste	—	—	—	—	—	—	—	—	—	—	—	0.71	0.00	0.71	0.07	0.00	—	2.47
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.27	0.27
Stationa ry	6.53	7.86	24.8	20.2	0.03	0.82	0.00	0.82	0.82	0.00	0.82	0.00	2,965	2,965	0.43	0.02	0.00	2,982
Total	6.56	7.88	24.8	20.2	0.03	0.82	0.00	0.82	0.82	0.00	0.82	1.17	4,586	4,587	0.81	0.05	0.27	4,624

Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Area	0.03	0.03	< 0.005	0.02	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.09	0.09	< 0.005	< 0.005	—	0.09
Energy	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	1,620	1,620	0.26	0.03	—	1,636
Water	—	—	—	—	—	—	—	—	—	—	—	0.47	0.88	1.35	0.05	< 0.005	—	2.90
Waste	—	—	—	—	—	—	—	—	—	—	—	0.71	0.00	0.71	0.07	0.00	—	2.47
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.27	0.27
Stationary	0.90	1.08	3.40	2.76	< 0.005	0.11	0.00	0.11	0.11	0.00	0.11	0.00	406	406	0.06	< 0.005	0.00	408
Total	0.93	1.11	3.40	2.79	< 0.005	0.11	0.00	0.11	0.11	0.00	0.11	1.17	2,027	2,028	0.44	0.04	0.27	2,050
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Area	0.01	0.01	< 0.005	< 0.005	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.02	0.02	< 0.005	< 0.005	—	0.02
Energy	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	268	268	0.04	0.01	—	271
Water	—	—	—	—	—	—	—	—	—	—	—	0.08	0.15	0.22	0.01	< 0.005	—	0.48
Waste	—	—	—	—	—	—	—	—	—	—	—	0.12	0.00	0.12	0.01	0.00	—	0.41
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.05	0.05
Stationary	0.16	0.20	0.62	0.50	< 0.005	0.02	0.00	0.02	0.02	0.00	0.02	0.00	67.2	67.2	0.01	< 0.005	0.00	67.6
Total	0.17	0.20	0.62	0.51	< 0.005	0.02	0.00	0.02	0.02	0.00	0.02	0.19	336	336	0.07	0.01	0.05	339

3. Construction Emissions Details

3.1. Site Preparation (2025) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.56	0.47	4.16	5.57	0.01	0.21	—	0.21	0.20	—	0.20	—	859	859	0.03	0.01	—	862
Dust From Material Movement	—	—	—	—	—	—	0.57	0.57	—	0.06	0.06	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	0.01	0.02	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	2.35	2.35	< 0.005	< 0.005	—	2.36
Dust From Material Movement	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.39	0.39	< 0.005	< 0.005	—	0.39
Dust From Material Movement	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—

Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.02	0.18	0.00	0.00	0.04	0.04	0.00	0.01	0.01	—	39.7	39.7	< 0.005	< 0.005	< 0.005	40.2
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.24	0.05	3.01	1.41	0.01	0.04	0.59	0.64	0.03	0.16	0.19	—	2,293	2,293	0.19	0.36	0.13	2,406
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.11	0.11	< 0.005	< 0.005	< 0.005	0.11
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	6.28	6.28	< 0.005	< 0.005	0.01	6.59
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.02	0.02	< 0.005	< 0.005	< 0.005	0.02
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	1.04	1.04	< 0.005	< 0.005	< 0.005	1.09

3.2. Site Preparation (2025) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	0.08	0.08	0.42	5.99	0.01	0.02	—	0.02	0.02	—	0.02	—	859	859	0.03	0.01	—	862
Dust From Material Movement	—	—	—	—	—	—	0.22	0.22	—	0.02	0.02	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	< 0.005	0.02	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	2.35	2.35	< 0.005	< 0.005	—	2.36
Dust From Material Movement	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.39	0.39	< 0.005	< 0.005	—	0.39
Dust From Material Movement	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.02	0.18	0.00	0.00	0.04	0.04	0.00	0.01	0.01	—	39.7	39.7	< 0.005	< 0.005	< 0.005	40.2
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.24	0.05	3.01	1.41	0.01	0.04	0.59	0.64	0.03	0.16	0.19	—	2,293	2,293	0.19	0.36	0.13	2,406
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.11	0.11	< 0.005	< 0.005	< 0.005	0.11
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	6.28	6.28	< 0.005	< 0.005	0.01	6.59
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.02	0.02	< 0.005	< 0.005	< 0.005	0.02
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	1.04	1.04	< 0.005	< 0.005	< 0.005	1.09

3.3. Grading (2025) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.29	1.09	10.1	10.0	0.02	0.46	—	0.46	0.43	—	0.43	—	1,714	1,714	0.07	0.01	—	1,720

Dust From Material Movement	—	—	—	—	—	—	5.31	5.31	—	2.57	2.57	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.06	0.06	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	9.39	9.39	< 0.005	< 0.005	—	9.42
Dust From Material Movement	—	—	—	—	—	—	0.03	0.03	—	0.01	0.01	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	1.55	1.55	< 0.005	< 0.005	—	1.56
Dust From Material Movement	—	—	—	—	—	—	0.01	0.01	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.02	0.26	0.00	0.00	0.06	0.06	0.00	0.01	0.01	—	59.5	59.5	< 0.005	< 0.005	0.01	60.4

Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.33	0.33	< 0.005	< 0.005	< 0.005	0.33
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.05	0.05	< 0.005	< 0.005	< 0.005	0.06
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.4. Grading (2025) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.16	0.16	0.84	9.79	0.02	0.03	—	0.03	0.03	—	0.03	—	1,714	1,714	0.07	0.01	—	1,720
Dust From Material Movement	—	—	—	—	—	—	2.07	2.07	—	1.00	1.00	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	< 0.005	0.05	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	9.39	9.39	< 0.005	< 0.005	—	9.42
Dust From Material Movement	—	—	—	—	—	—	0.01	0.01	—	0.01	0.01	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	< 0.005	0.01	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	1.55	1.55	< 0.005	< 0.005	—	1.56
Dust From Material Movement	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.02	0.26	0.00	0.00	0.06	0.06	0.00	0.01	0.01	—	59.5	59.5	< 0.005	< 0.005	0.01	60.4
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.33	0.33	< 0.005	< 0.005	< 0.005	0.33

Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.05	0.05	< 0.005	< 0.005	< 0.005	0.06
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.5. Building Construction (2025) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.19	1.00	9.68	11.8	0.02	0.34	—	0.34	0.31	—	0.31	—	2,046	2,046	0.08	0.02	—	2,054
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.19	1.00	9.68	11.8	0.02	0.34	—	0.34	0.31	—	0.31	—	2,046	2,046	0.08	0.02	—	2,054
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	0.81	0.67	6.54	8.00	0.01	0.23	—	0.23	0.21	—	0.21	—	1,382	1,382	0.06	0.01	—	1,386
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.15	0.12	1.19	1.46	< 0.005	0.04	—	0.04	0.04	—	0.04	—	229	229	0.01	< 0.005	—	230
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.02	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	3.80	3.80	< 0.005	< 0.005	0.02	3.86
Vendor	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	4.67	4.67	< 0.005	< 0.005	0.01	4.88
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.02	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	3.52	3.52	< 0.005	< 0.005	< 0.005	3.57
Vendor	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	4.67	4.67	< 0.005	< 0.005	< 0.005	4.87
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	2.40	2.40	< 0.005	< 0.005	< 0.005	2.44
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	3.15	3.15	< 0.005	< 0.005	< 0.005	3.29
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.40	0.40	< 0.005	< 0.005	< 0.005	0.40

Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.52	0.52	< 0.005	< 0.005	< 0.005	0.55
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.6. Building Construction (2025) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.24	0.24	4.22	12.9	0.01	0.04	—	0.04	0.04	—	0.04	—	1,305	1,305	0.05	0.01	—	1,309
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.24	0.24	4.22	12.9	0.01	0.04	—	0.04	0.04	—	0.04	—	1,305	1,305	0.05	0.01	—	1,309
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.16	0.16	2.85	8.73	0.01	0.03	—	0.03	0.03	—	0.03	—	881	881	0.04	0.01	—	884
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	0.03	0.03	0.52	1.59	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	146	146	0.01	< 0.005	—	146
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.02	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	3.80	3.80	< 0.005	< 0.005	0.02	3.86
Vendor	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	4.67	4.67	< 0.005	< 0.005	0.01	4.88
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.02	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	3.52	3.52	< 0.005	< 0.005	< 0.005	3.57
Vendor	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	4.67	4.67	< 0.005	< 0.005	< 0.005	4.87
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	2.40	2.40	< 0.005	< 0.005	< 0.005	2.44
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	3.15	3.15	< 0.005	< 0.005	< 0.005	3.29
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.40	0.40	< 0.005	< 0.005	< 0.005	0.40
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.52	0.52	< 0.005	< 0.005	< 0.005	0.55
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.7. Building Construction (2026) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.12	0.93	9.22	11.8	0.02	0.29	—	0.29	0.27	—	0.27	—	2,046	2,046	0.08	0.02	—	2,053
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.12	0.93	9.22	11.8	0.02	0.29	—	0.29	0.27	—	0.27	—	2,046	2,046	0.08	0.02	—	2,053
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.29	0.24	2.36	3.02	0.01	0.07	—	0.07	0.07	—	0.07	—	525	525	0.02	< 0.005	—	526
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.05	0.04	0.43	0.55	< 0.005	0.01	—	0.01	0.01	—	0.01	—	86.8	86.8	< 0.005	< 0.005	—	87.1
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Worker	< 0.005	< 0.005	< 0.005	0.02	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	3.73	3.73	< 0.005	< 0.005	0.01	3.78
Vendor	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	4.58	4.58	< 0.005	< 0.005	0.01	4.80
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	3.45	3.45	< 0.005	< 0.005	< 0.005	3.50
Vendor	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	4.59	4.59	< 0.005	< 0.005	< 0.005	4.79
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.89	0.89	< 0.005	< 0.005	< 0.005	0.91
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	1.18	1.18	< 0.005	< 0.005	< 0.005	1.23
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.15	0.15	< 0.005	< 0.005	< 0.005	0.15
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.19	0.19	< 0.005	< 0.005	< 0.005	0.20
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.8. Building Construction (2026) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.24	0.24	4.22	12.9	0.01	0.04	—	0.04	0.04	—	0.04	—	1,304	1,304	0.05	0.01	—	1,309

Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.24	0.24	4.22	12.9	0.01	0.04	—	0.04	0.04	—	0.04	—	1,304	1,304	0.05	0.01	—	1,309
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.06	0.06	1.08	3.31	< 0.005	0.01	—	0.01	0.01	—	0.01	—	334	334	0.01	< 0.005	—	336
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.20	0.60	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	55.4	55.4	< 0.005	< 0.005	—	55.6
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.02	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	3.73	3.73	< 0.005	< 0.005	0.01	3.78
Vendor	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	4.58	4.58	< 0.005	< 0.005	0.01	4.80
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	3.45	3.45	< 0.005	< 0.005	< 0.005	3.50
Vendor	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	4.59	4.59	< 0.005	< 0.005	< 0.005	4.79
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.89	0.89	< 0.005	< 0.005	< 0.005	0.91
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	1.18	1.18	< 0.005	< 0.005	< 0.005	1.23
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.15	0.15	< 0.005	< 0.005	< 0.005	0.15
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.19	0.19	< 0.005	< 0.005	< 0.005	0.20
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.9. Paving (2026) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.59	0.49	4.24	5.30	0.01	0.18	—	0.18	0.16	—	0.16	—	823	823	0.03	0.01	—	826
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	0.04	0.03	0.29	0.36	< 0.005	0.01	—	0.01	0.01	—	0.01	—	56.4	56.4	< 0.005	< 0.005	—	56.6
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.05	0.07	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	9.33	9.33	< 0.005	< 0.005	—	9.36
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.06	0.06	0.04	0.67	0.00	0.00	0.14	0.14	0.00	0.03	0.03	—	147	147	< 0.005	0.01	0.54	149
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.04	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	9.44	9.44	< 0.005	< 0.005	0.02	9.58
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	1.56	1.56	< 0.005	< 0.005	< 0.005	1.59
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.10. Paving (2026) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.27	0.23	2.09	5.55	0.01	0.06	—	0.06	0.06	—	0.06	—	823	823	0.03	0.01	—	826
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02	0.02	0.14	0.38	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	56.4	56.4	< 0.005	< 0.005	—	56.6
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	0.03	0.07	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	9.33	9.33	< 0.005	< 0.005	—	9.36
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.06	0.06	0.04	0.67	0.00	0.00	0.14	0.14	0.00	0.03	0.03	—	147	147	< 0.005	0.01	0.54	149
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.04	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	9.44	9.44	< 0.005	< 0.005	0.02	9.58
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	1.56	1.56	< 0.005	< 0.005	< 0.005	1.59
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.11. Architectural Coating (2026) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.15	0.12	0.86	1.13	< 0.005	0.02	—	0.02	0.02	—	0.02	—	134	134	0.01	< 0.005	—	134

Architectural	1.24	1.24	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	0.02	0.03	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	3.66	3.66	< 0.005	< 0.005	—	3.67
Architectural Coatings	0.03	0.03	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	< 0.005	0.01	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.61	0.61	< 0.005	< 0.005	—	0.61
Architectural Coatings	0.01	0.01	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.75	0.75	< 0.005	< 0.005	< 0.005	0.76
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.02	0.02	< 0.005	< 0.005	< 0.005	0.02
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.12. Architectural Coating (2026) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02	0.02	0.65	0.96	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	1.24	1.24	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	0.02	0.03	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	3.66	3.66	< 0.005	< 0.005	—	3.67
Architectural Coatings	0.03	0.03	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.61	0.61	< 0.005	< 0.005	—	0.61
Architectural Coatings	0.01	0.01	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.75	0.75	< 0.005	< 0.005	< 0.005	0.76
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.02	0.02	< 0.005	< 0.005	< 0.005	0.02
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

4. Operations Emissions Details

4.1. Mobile Emissions by Land Use

4.1.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Other Non-Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Total	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

General Light Industry	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Other Non-Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Total	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Other Non-Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Total	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

4.1.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Other Non-Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Total	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

General Light Industry	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Other Non-Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Total	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Other Non-Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Total	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

4.2. Energy

4.2.1. Electricity Emissions By Land Use - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	—	—	—	—	—	—	—	—	—	—	—	—	1,620	1,620	0.26	0.03	—	1,636
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	—	1,620	1,620	0.26	0.03	—	1,636
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

General Light Industry	—	—	—	—	—	—	—	—	—	—	—	—	1,620	1,620	0.26	0.03	—	1,636
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	—	1,620	1,620	0.26	0.03	—	1,636
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	—	—	—	—	—	—	—	—	—	—	—	—	268	268	0.04	0.01	—	271
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	—	268	268	0.04	0.01	—	271

4.2.2. Electricity Emissions By Land Use - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	—	—	—	—	—	—	—	—	—	—	—	—	1,620	1,620	0.26	0.03	—	1,636
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	—	1,620	1,620	0.26	0.03	—	1,636
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

General Light Industry	—	—	—	—	—	—	—	—	—	—	—	—	1,620	1,620	0.26	0.03	—	1,636
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	—	1,620	1,620	0.26	0.03	—	1,636
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	—	—	—	—	—	—	—	—	—	—	—	—	268	268	0.04	0.01	—	271
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	—	268	268	0.04	0.01	—	271

4.2.3. Natural Gas Emissions By Land Use - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Other Non-Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Total	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

General Light Industry	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Other Non-Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Total	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Other Non-Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Total	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00

4.2.4. Natural Gas Emissions By Land Use - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Other Non-Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Total	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

General Light Industry	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Other Non-Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Total	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Other Non-Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Total	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00

4.3. Area Emissions by Source

4.3.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Source	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	0.02	0.02	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	< 0.005	< 0.005	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Landscape Equipment	0.01	0.01	< 0.005	0.05	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.19	0.19	< 0.005	< 0.005	—	0.19
Total	0.03	0.03	< 0.005	0.05	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.19	0.19	< 0.005	< 0.005	—	0.19
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	0.02	0.02	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	< 0.005	< 0.005	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	0.03	0.03	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	< 0.005	< 0.005	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	< 0.005	< 0.005	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.02	0.02	< 0.005	< 0.005	—	0.02
Total	0.01	0.01	< 0.005	< 0.005	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.02	0.02	< 0.005	< 0.005	—	0.02

4.3.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Source	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	0.02	0.02	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	< 0.005	< 0.005	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.01	0.01	< 0.005	0.05	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.19	0.19	< 0.005	< 0.005	—	0.19
Total	0.03	0.03	< 0.005	0.05	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.19	0.19	< 0.005	< 0.005	—	0.19
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	0.02	0.02	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	< 0.005	< 0.005	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	0.03	0.03	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	< 0.005	< 0.005	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	< 0.005	< 0.005	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Landscape	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.02	0.02	< 0.005	< 0.005	—	0.02
Total	0.01	0.01	< 0.005	< 0.005	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.02	0.02	< 0.005	< 0.005	—	0.02

4.4. Water Emissions by Land Use

4.4.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	—	—	—	—	—	—	—	—	—	—	—	0.47	0.88	1.35	0.05	< 0.005	—	2.90
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	0.47	0.88	1.35	0.05	< 0.005	—	2.90
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	—	—	—	—	—	—	—	—	—	—	—	0.47	0.88	1.35	0.05	< 0.005	—	2.90
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	0.47	0.88	1.35	0.05	< 0.005	—	2.90
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	—	—	—	—	—	—	—	—	—	—	—	0.08	0.15	0.22	0.01	< 0.005	—	0.48

Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	0.08	0.15	0.22	0.01	< 0.005	—	0.48

4.4.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	—	—	—	—	—	—	—	—	—	—	—	0.47	0.88	1.35	0.05	< 0.005	—	2.90
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	0.47	0.88	1.35	0.05	< 0.005	—	2.90
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	—	—	—	—	—	—	—	—	—	—	—	0.47	0.88	1.35	0.05	< 0.005	—	2.90
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	0.47	0.88	1.35	0.05	< 0.005	—	2.90
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	—	—	—	—	—	—	—	—	—	—	—	0.08	0.15	0.22	0.01	< 0.005	—	0.48

Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	0.08	0.15	0.22	0.01	< 0.005	—	0.48

4.5. Waste Emissions by Land Use

4.5.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	—	—	—	—	—	—	—	—	—	—	—	0.71	0.00	0.71	0.07	0.00	—	2.47
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	0.71	0.00	0.71	0.07	0.00	—	2.47
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	—	—	—	—	—	—	—	—	—	—	—	0.71	0.00	0.71	0.07	0.00	—	2.47
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	0.71	0.00	0.71	0.07	0.00	—	2.47
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	—	—	—	—	—	—	—	—	—	—	—	0.12	0.00	0.12	0.01	0.00	—	0.41

Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	0.12	0.00	0.12	0.01	0.00	—	0.41

4.5.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	—	—	—	—	—	—	—	—	—	—	—	0.71	0.00	0.71	0.07	0.00	—	2.47
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	0.71	0.00	0.71	0.07	0.00	—	2.47
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	—	—	—	—	—	—	—	—	—	—	—	0.71	0.00	0.71	0.07	0.00	—	2.47
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	0.71	0.00	0.71	0.07	0.00	—	2.47
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	—	—	—	—	—	—	—	—	—	—	—	0.12	0.00	0.12	0.01	0.00	—	0.41

Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	0.12	0.00	0.12	0.01	0.00	—	0.41

4.6. Refrigerant Emissions by Land Use

4.6.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.27	0.27
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.27	0.27
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.27	0.27
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.27	0.27
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.05	0.05
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.05	0.05

4.6.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.27	0.27
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.27	0.27
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.27	0.27
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.27	0.27
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.05	0.05
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.05	0.05

4.7. Offroad Emissions By Equipment Type

4.7.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.7.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.8. Stationary Emissions By Equipment Type

4.8.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Emerge Generator	6.53	7.86	24.8	20.2	0.03	0.82	0.00	0.82	0.82	0.00	0.82	0.00	2,965	2,965	0.43	0.02	0.00	2,982
Total	6.53	7.86	24.8	20.2	0.03	0.82	0.00	0.82	0.82	0.00	0.82	0.00	2,965	2,965	0.43	0.02	0.00	2,982
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Emergency Generator	6.53	7.86	24.8	20.2	0.03	0.82	0.00	0.82	0.82	0.00	0.82	0.00	2,965	2,965	0.43	0.02	0.00	2,982
Total	6.53	7.86	24.8	20.2	0.03	0.82	0.00	0.82	0.82	0.00	0.82	0.00	2,965	2,965	0.43	0.02	0.00	2,982
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Emergency Generator	0.16	0.20	0.62	0.50	< 0.005	0.02	0.00	0.02	0.02	0.00	0.02	0.00	67.2	67.2	0.01	< 0.005	0.00	67.6
Total	0.16	0.20	0.62	0.50	< 0.005	0.02	0.00	0.02	0.02	0.00	0.02	0.00	67.2	67.2	0.01	< 0.005	0.00	67.6

4.8.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Emergency Generator	6.53	7.86	24.8	20.2	0.03	0.82	0.00	0.82	0.82	0.00	0.82	0.00	2,965	2,965	0.43	0.02	0.00	2,982
Total	6.53	7.86	24.8	20.2	0.03	0.82	0.00	0.82	0.82	0.00	0.82	0.00	2,965	2,965	0.43	0.02	0.00	2,982
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Emergency	6.53	7.86	24.8	20.2	0.03	0.82	0.00	0.82	0.82	0.00	0.82	0.00	2,965	2,965	0.43	0.02	0.00	2,982
Total	6.53	7.86	24.8	20.2	0.03	0.82	0.00	0.82	0.82	0.00	0.82	0.00	2,965	2,965	0.43	0.02	0.00	2,982
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Emergency Generator	0.16	0.20	0.62	0.50	< 0.005	0.02	0.00	0.02	0.02	0.00	0.02	0.00	67.2	67.2	0.01	< 0.005	0.00	67.6
Total	0.16	0.20	0.62	0.50	< 0.005	0.02	0.00	0.02	0.02	0.00	0.02	0.00	67.2	67.2	0.01	< 0.005	0.00	67.6

4.9. User Defined Emissions By Equipment Type

4.9.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.9.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10. Soil Carbon Accumulation By Vegetation Type

4.10.1. Soil Carbon Accumulation By Vegetation Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Vegetation	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.2. Above and Belowground Carbon Accumulation by Land Use Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.3. Avoided and Sequestered Emissions by Species - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Species	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.4. Soil Carbon Accumulation By Vegetation Type - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Vegetation	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.5. Above and Belowground Carbon Accumulation by Land Use Type - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.6. Avoided and Sequestered Emissions by Species - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Species	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

5. Activity Data

5.1. Construction Schedule

Phase Name	Phase Type	Start Date	End Date	Days Per Week	Work Days per Phase	Phase Description
Site Preparation	Site Preparation	1/16/2025	1/17/2025	5.00	1.00	—
Grading	Grading	1/18/2025	1/20/2025	5.00	2.00	—

Building Construction	Building Construction	1/21/2025	5/11/2026	5.00	340	—
Paving	Paving	5/12/2026	6/15/2026	5.00	25.0	—
Architectural Coating	Architectural Coating	6/17/2026	6/30/2026	5.00	10.0	—

5.2. Off-Road Equipment

5.2.1. Unmitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Site Preparation	Graders	Diesel	Average	1.00	8.00	148	0.41
Site Preparation	Tractors/Loaders/Backhoes	Diesel	Average	1.00	8.00	84.0	0.37
Grading	Graders	Diesel	Average	1.00	6.00	148	0.41
Grading	Rubber Tired Dozers	Diesel	Average	1.00	6.00	367	0.40
Grading	Tractors/Loaders/Backhoes	Diesel	Average	1.00	7.00	84.0	0.37
Building Construction	Cranes	Diesel	Average	1.00	4.00	367	0.29
Building Construction	Forklifts	Diesel	Average	2.00	6.00	82.0	0.20
Building Construction	Tractors/Loaders/Backhoes	Diesel	Average	2.00	8.00	84.0	0.37
Building Construction	Generator Sets	Diesel	Average	2.00	8.00	50.0	0.74
Paving	Cement and Mortar Mixers	Diesel	Average	4.00	6.00	10.0	0.56
Paving	Pavers	Diesel	Average	1.00	7.00	81.0	0.42
Paving	Rollers	Diesel	Average	1.00	7.00	36.0	0.38
Paving	Tractors/Loaders/Backhoes	Diesel	Average	1.00	7.00	84.0	0.37
Architectural Coating	Air Compressors	Diesel	Average	1.00	6.00	37.0	0.48

5.2.2. Mitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor

Site Preparation	Graders	Diesel	Tier 4 Final	1.00	8.00	148	0.41
Site Preparation	Tractors/Loaders/Backhoes	Diesel	Tier 4 Final	1.00	8.00	84.0	0.37
Grading	Graders	Diesel	Tier 4 Final	1.00	6.00	148	0.41
Grading	Rubber Tired Dozers	Diesel	Tier 4 Final	1.00	6.00	367	0.40
Grading	Tractors/Loaders/Backhoes	Diesel	Tier 4 Final	1.00	7.00	84.0	0.37
Building Construction	Cranes	Diesel	Tier 4 Final	1.00	4.00	367	0.29
Building Construction	Forklifts	Diesel	Tier 4 Final	2.00	6.00	82.0	0.20
Building Construction	Tractors/Loaders/Backhoes	Diesel	Tier 4 Final	2.00	8.00	84.0	0.37
Building Construction	Generator Sets	Diesel	Tier 4 Final	2.00	8.00	50.0	0.74
Paving	Cement and Mortar Mixers	Diesel	Average	4.00	6.00	10.0	0.56
Paving	Pavers	Diesel	Tier 4 Final	1.00	7.00	81.0	0.42
Paving	Rollers	Diesel	Tier 4 Final	1.00	7.00	36.0	0.38
Paving	Tractors/Loaders/Backhoes	Diesel	Tier 4 Final	1.00	7.00	84.0	0.37
Architectural Coating	Air Compressors	Diesel	Tier 4 Final	1.00	6.00	37.0	0.48

5.3. Construction Vehicles

5.3.1. Unmitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Site Preparation	—	—	—	—
Site Preparation	Worker	5.00	11.7	LDA,LDT1,LDT2
Site Preparation	Vendor	—	8.40	HHDT,MHDT
Site Preparation	Hauling	32.0	20.0	HHDT
Site Preparation	Onsite truck	—	—	HHDT
Grading	—	—	—	—

Grading	Worker	7.50	11.7	LDA,LDT1,LDT2
Grading	Vendor	—	8.40	HHDT,MHDT
Grading	Hauling	0.00	20.0	HHDT
Grading	Onsite truck	—	—	HHDT
Building Construction	—	—	—	—
Building Construction	Worker	0.44	11.7	LDA,LDT1,LDT2
Building Construction	Vendor	0.17	8.40	HHDT,MHDT
Building Construction	Hauling	0.00	20.0	HHDT
Building Construction	Onsite truck	—	—	HHDT
Paving	—	—	—	—
Paving	Worker	17.5	11.7	LDA,LDT1,LDT2
Paving	Vendor	—	8.40	HHDT,MHDT
Paving	Hauling	0.00	20.0	HHDT
Paving	Onsite truck	—	—	HHDT
Architectural Coating	—	—	—	—
Architectural Coating	Worker	0.09	11.7	LDA,LDT1,LDT2
Architectural Coating	Vendor	—	8.40	HHDT,MHDT
Architectural Coating	Hauling	0.00	20.0	HHDT
Architectural Coating	Onsite truck	—	—	HHDT

5.3.2. Mitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Site Preparation	—	—	—	—
Site Preparation	Worker	5.00	11.7	LDA,LDT1,LDT2
Site Preparation	Vendor	—	8.40	HHDT,MHDT
Site Preparation	Hauling	32.0	20.0	HHDT
Site Preparation	Onsite truck	—	—	HHDT
Grading	—	—	—	—

Grading	Worker	7.50	11.7	LDA,LDT1,LDT2
Grading	Vendor	—	8.40	HHDT,MHDT
Grading	Hauling	0.00	20.0	HHDT
Grading	Onsite truck	—	—	HHDT
Building Construction	—	—	—	—
Building Construction	Worker	0.44	11.7	LDA,LDT1,LDT2
Building Construction	Vendor	0.17	8.40	HHDT,MHDT
Building Construction	Hauling	0.00	20.0	HHDT
Building Construction	Onsite truck	—	—	HHDT
Paving	—	—	—	—
Paving	Worker	17.5	11.7	LDA,LDT1,LDT2
Paving	Vendor	—	8.40	HHDT,MHDT
Paving	Hauling	0.00	20.0	HHDT
Paving	Onsite truck	—	—	HHDT
Architectural Coating	—	—	—	—
Architectural Coating	Worker	0.09	11.7	LDA,LDT1,LDT2
Architectural Coating	Vendor	—	8.40	HHDT,MHDT
Architectural Coating	Hauling	0.00	20.0	HHDT
Architectural Coating	Onsite truck	—	—	HHDT

5.4. Vehicles

5.4.1. Construction Vehicle Control Strategies

Non-applicable. No control strategies activated by user.

5.5. Architectural Coatings

Phase Name	Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)
Architectural Coating	0.00	0.00	1,583	528	310

5.6. Dust Mitigation

5.6.1. Construction Earthmoving Activities

Phase Name	Material Imported (Cubic Yards)	Material Exported (Cubic Yards)	Acres Graded (acres)	Material Demolished (sq. ft.)	Acres Paved (acres)
Site Preparation	210	254	0.50	0.00	—
Grading	0.00	0.00	1.50	0.00	—
Paving	0.00	0.00	0.00	0.00	1.46

5.6.2. Construction Earthmoving Control Strategies

Non-applicable. No control strategies activated by user.

5.7. Construction Paving

Land Use	Area Paved (acres)	% Asphalt
General Light Industry	1.34	0%
Other Non-Asphalt Surfaces	0.12	0%

5.8. Construction Electricity Consumption and Emissions Factors

kWh per Year and Emission Factor (lb/MWh)

Year	kWh per Year	CO2	CH4	N2O
2025	0.00	204	0.03	< 0.005
2026	0.00	204	0.03	< 0.005

5.9. Operational Mobile Sources

5.9.1. Unmitigated

Land Use Type	Trips/Weekday	Trips/Saturday	Trips/Sunday	Trips/Year	VMT/Weekday	VMT/Saturday	VMT/Sunday	VMT/Year

General Light Industry	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Other Non-Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

5.9.2. Mitigated

Land Use Type	Trips/Weekday	Trips/Saturday	Trips/Sunday	Trips/Year	VMT/Weekday	VMT/Saturday	VMT/Sunday	VMT/Year
General Light Industry	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Other Non-Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

5.10. Operational Area Sources

5.10.1. Hearths

5.10.1.1. Unmitigated

5.10.1.2. Mitigated

5.10.2. Architectural Coatings

Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)
0	0.00	1,583	528	310

5.10.3. Landscape Equipment

Season	Unit	Value
Snow Days	day/yr	0.00
Summer Days	day/yr	180

5.10.4. Landscape Equipment - Mitigated

Season	Unit	Value
Snow Days	day/yr	0.00
Summer Days	day/yr	180

5.11. Operational Energy Consumption

5.11.1. Unmitigated

Electricity (kWh/yr) and CO2 and CH4 and N2O and Natural Gas (kBTU/yr)

Land Use	Electricity (kWh/yr)	CO2	CH4	N2O	Natural Gas (kBTU/yr)
General Light Industry	2,898,720	204	0.0330	0.0040	0.00
Other Non-Asphalt Surfaces	0.00	204	0.0330	0.0040	0.00

5.11.2. Mitigated

Electricity (kWh/yr) and CO2 and CH4 and N2O and Natural Gas (kBTU/yr)

Land Use	Electricity (kWh/yr)	CO2	CH4	N2O	Natural Gas (kBTU/yr)
General Light Industry	2,898,720	204	0.0330	0.0040	0.00
Other Non-Asphalt Surfaces	0.00	204	0.0330	0.0040	0.00

5.12. Operational Water and Wastewater Consumption

5.12.1. Unmitigated

Land Use	Indoor Water (gal/year)	Outdoor Water (gal/year)
General Light Industry	243,969	0.00
Other Non-Asphalt Surfaces	0.00	0.00

5.12.2. Mitigated

Land Use	Indoor Water (gal/year)	Outdoor Water (gal/year)
General Light Industry	243,969	0.00
Other Non-Asphalt Surfaces	0.00	0.00

5.13. Operational Waste Generation

5.13.1. Unmitigated

Land Use	Waste (ton/year)	Cogeneration (kWh/year)
General Light Industry	1.31	—
Other Non-Asphalt Surfaces	0.00	—

5.13.2. Mitigated

Land Use	Waste (ton/year)	Cogeneration (kWh/year)
General Light Industry	1.31	—
Other Non-Asphalt Surfaces	0.00	—

5.14. Operational Refrigeration and Air Conditioning Equipment

5.14.1. Unmitigated

Land Use Type	Equipment Type	Refrigerant	GWP	Quantity (kg)	Operations Leak Rate	Service Leak Rate	Times Serviced
General Light Industry	Other commercial A/C and heat pumps	R-410A	2,088	0.30	4.00	4.00	18.0

5.14.2. Mitigated

Land Use Type	Equipment Type	Refrigerant	GWP	Quantity (kg)	Operations Leak Rate	Service Leak Rate	Times Serviced
General Light Industry	Other commercial A/C and heat pumps	R-410A	2,088	0.30	4.00	4.00	18.0

5.15. Operational Off-Road Equipment

5.15.1. Unmitigated

Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor

5.15.2. Mitigated

Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor

5.16. Stationary Sources

5.16.1. Emergency Generators and Fire Pumps

Equipment Type	Fuel Type	Number per Day	Hours per Day	Hours per Year	Horsepower	Load Factor
Emergency Generator	CNG	1.00	2.00	100	134	0.73
Emergency Generator	Diesel	1.00	2.00	100	1,676	0.73

5.16.2. Process Boilers

Equipment Type	Fuel Type	Number	Boiler Rating (MMBtu/hr)	Daily Heat Input (MMBtu/day)	Annual Heat Input (MMBtu/yr)

5.17. User Defined

Equipment Type	Fuel Type

5.18. Vegetation

5.18.1. Land Use Change

5.18.1.1. Unmitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres

5.18.1.2. Mitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres

5.18.1. Biomass Cover Type

5.18.1.1. Unmitigated

Biomass Cover Type	Initial Acres	Final Acres

5.18.1.2. Mitigated

Biomass Cover Type	Initial Acres	Final Acres

5.18.2. Sequestration

5.18.2.1. Unmitigated

Tree Type	Number	Electricity Saved (kWh/year)	Natural Gas Saved (btu/year)

5.18.2.2. Mitigated

Tree Type	Number	Electricity Saved (kWh/year)	Natural Gas Saved (btu/year)

6. Climate Risk Detailed Report

6.1. Climate Risk Summary

Cal-Adapt midcentury 2040–2059 average projections for four hazards are reported below for your project location. These are under Representation Concentration Pathway (RCP) 8.5 which assumes GHG emissions will continue to rise strongly through 2050 and then plateau around 2100.

Climate Hazard	Result for Project Location	Unit
Temperature and Extreme Heat	13.3	annual days of extreme heat
Extreme Precipitation	2.70	annual days with precipitation above 20 mm

Sea Level Rise	—	meters of inundation depth
Wildfire	14.4	annual hectares burned

Temperature and Extreme Heat data are for grid cell in which your project are located. The projection is based on the 98th historical percentile of daily maximum/minimum temperatures from observed historical data (32 climate model ensemble from Cal-Adapt, 2040–2059 average under RCP 8.5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Extreme Precipitation data are for the grid cell in which your project are located. The threshold of 20 mm is equivalent to about ¾ an inch of rain, which would be light to moderate rainfall if received over a full day or heavy rain if received over a period of 2 to 4 hours. Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Sea Level Rise data are for the grid cell in which your project are located. The projections are from Radke et al. (2017), as reported in Cal-Adapt (Radke et al., 2017, CEC-500-2017-008), and consider inundation location and depth for the San Francisco Bay, the Sacramento-San Joaquin River Delta and California coast resulting different increments of sea level rise coupled with extreme storm events. Users may select from four scenarios to view the range in potential inundation depth for the grid cell. The four scenarios are: No rise, 0.5 meter, 1.0 meter, 1.41 meters
Wildfire data are for the grid cell in which your project are located. The projections are from UC Davis, as reported in Cal-Adapt (2040–2059 average under RCP 8.5), and consider historical data of climate, vegetation, population density, and large (> 400 ha) fire history. Users may select from four model simulations to view the range in potential wildfire probabilities for the grid cell. The four simulations make different assumptions about expected rainfall and temperature are: Warmer/drier (HadGEM2-ES), Cooler/wetter (CNRM-CM5), Average conditions (CanESM2), Range of different rainfall and temperature possibilities (MIROC5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.

6.2. Initial Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	N/A	N/A	N/A	N/A
Extreme Precipitation	1	0	0	N/A
Sea Level Rise	1	0	0	N/A
Wildfire	1	0	0	N/A
Flooding	N/A	N/A	N/A	N/A
Drought	N/A	N/A	N/A	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	0	0	0	N/A

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores do not include implementation of climate risk reduction measures.

6.3. Adjusted Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	N/A	N/A	N/A	N/A

Extreme Precipitation	1	1	1	2
Sea Level Rise	1	1	1	2
Wildfire	1	1	1	2
Flooding	N/A	N/A	N/A	N/A
Drought	N/A	N/A	N/A	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	1	1	1	2

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores include implementation of climate risk reduction measures.

7. Health and Equity Details

7.1. CalEnviroScreen 4.0 Scores

The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Exposure Indicators	—
AQ-Ozone	22.2
AQ-PM	13.0
AQ-DPM	2.55
Drinking Water	31.3
Lead Risk Housing	20.1
Pesticides	0.00
Toxic Releases	27.6
Traffic	9.13
Effect Indicators	—
CleanUp Sites	17.1

Groundwater	0.00
Haz Waste Facilities/Generators	16.6
Impaired Water Bodies	0.00
Solid Waste	0.00
Sensitive Population	—
Asthma	26.4
Cardio-vascular	35.7
Low Birth Weights	53.5
Socioeconomic Factor Indicators	—
Education	51.0
Housing	37.5
Linguistic	74.8
Poverty	30.5
Unemployment	66.6

7.2. Healthy Places Index Scores

The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Economic	—
Above Poverty	83.11305017
Employed	80.26433979
Median HI	93.27601694
Education	—
Bachelor's or higher	74.16912614
High school enrollment	100
Preschool enrollment	95.7141024
Transportation	—
Auto Access	42.10188631

Active commuting	30.20659566
Social	—
2-parent households	89.50340049
Voting	78.94264083
Neighborhood	—
Alcohol availability	68.67701784
Park access	25.8052098
Retail density	16.47632491
Supermarket access	2.399589375
Tree canopy	69.35711536
Housing	—
Homeownership	90.85076351
Housing habitability	81.71435904
Low-inc homeowner severe housing cost burden	69.97305274
Low-inc renter severe housing cost burden	31.52829462
Uncrowded housing	90.74810728
Health Outcomes	—
Insured adults	97.93404337
Arthritis	39.1
Asthma ER Admissions	74.9
High Blood Pressure	16.4
Cancer (excluding skin)	24.3
Asthma	92.9
Coronary Heart Disease	47.4
Chronic Obstructive Pulmonary Disease	76.7
Diagnosed Diabetes	47.0
Life Expectancy at Birth	94.0
Cognitively Disabled	60.3

Physically Disabled	91.7
Heart Attack ER Admissions	57.2
Mental Health Not Good	91.8
Chronic Kidney Disease	45.1
Obesity	93.1
Pedestrian Injuries	54.6
Physical Health Not Good	78.6
Stroke	58.2
Health Risk Behaviors	—
Binge Drinking	95.9
Current Smoker	94.0
No Leisure Time for Physical Activity	65.2
Climate Change Exposures	—
Wildfire Risk	0.3
SLR Inundation Area	0.0
Children	90.2
Elderly	18.2
English Speaking	27.9
Foreign-born	67.0
Outdoor Workers	80.9
Climate Change Adaptive Capacity	—
Impervious Surface Cover	83.8
Traffic Density	5.1
Traffic Access	64.1
Other Indices	—
Hardship	16.3
Other Decision Support	—
2016 Voting	81.1

7.3. Overall Health & Equity Scores

Metric	Result for Project Census Tract
CalEnviroScreen 4.0 Score for Project Location (a)	7.00
Healthy Places Index Score for Project Location (b)	90.0
Project Located in a Designated Disadvantaged Community (Senate Bill 535)	No
Project Located in a Low-Income Community (Assembly Bill 1550)	No
Project Located in a Community Air Protection Program Community (Assembly Bill 617)	No

a: The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.
b: The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

7.4. Health & Equity Measures

No Health & Equity Measures selected.

7.5. Evaluation Scorecard

Health & Equity Evaluation Scorecard not completed.

7.6. Health & Equity Custom Measures

No Health & Equity Custom Measures created.

8. User Changes to Default Data

Screen	Justification
Construction: Paving	GIS maps
Operations: Energy Use	Project Description
Land Use	Project Description
Operations: Vehicle Data	No increase in employees
Operations: Emergency Generators and Fire Pumps	Project Description:
Construction: Construction Phases	No demolition required.
Construction: Off-Road Equipment	Added generator sets to default construction equipment

Previous VPS annual energy use			
Historic energy demand of existing pumps	462	kW	Based upon historic use data below
For proposed set-up assume N+1			
Maximum pump total hp for proposed configuration (3 pumps at 100%)	1800	hp	
Energy demand for new pumps	1342	kW	
Net increase in energy demand for new pumps	**880**	**kW**	

Historic energy use for VPS

Year	Month	Days in operation	Total kWh*	Daily kWh
2013	June	1	19517	813
2015	September	1	14682	612
2015	October	6	47413	329
2016	June	17	156392	383
2016	July	7	106200	632
2016	August	29	373308	536
2016	September	5	33261	277
2017	September	7	83965	500
2019	November	6	52334	363
2020	January	3	29615	411
2020	February	24	191568	333
2021	June	4	30425	317
2021	September	6	62082	431
2022	March	29	425498	611
2022	July	3	40985	569
2022	November	8	61302	319
Average		**10**	**1,728,547**	**465**

*Total kWh has been adjusted to remove baseline power requirements for VPS, approximately 13,000kWh per month based upon historic data

Year	Days in operation	Total kWh	Daily kWh
2013	1	19,517	813
2014	0	0	0
2015	7	62,095	941
2016	58	669,161	1829
2017	7	83,965	500
2018	0	0	0
2019	6	52,334	363
2020	27	221,183	744
2021	10	92,507	748
2022	40	527,785	1500
	156	1,728,547	
	Hours per Year		
Average	374	172,855	Baseline
Maximum	1,392	502,445	Future
		329,590	Project
Worst-Case	2,160	2,898,720	Future
		2,725,865	Project

Attachment B

Health Risk Assessment Methodology, Assumptions, and Detailed Results

A health risk assessment (HRA) is accomplished in four steps: 1) hazards identification, 2) exposure assessment, 3) toxicity assessment, and 4) risk characterization. These steps cover the estimation of air emissions, the estimation of the air concentrations resulting from a dispersion analysis, the incorporation of the toxicity of the pollutants emitted, and the characterization of the risk based on exposure parameters such as breathing rate, age adjustment factors, and exposure duration; each depending on receptor type (i.e., residence, school, daycare centers, hospitals, senior care facilities, recreational areas, adult, infant, child).

This HRA was conducted in accordance with technical guidelines developed by federal, state, and regional agencies, including U.S. Environmental Protection Agency (USEPA), California Environmental Protection Agency (CalEPA), California Office of Environmental Health Hazard Assessment (OEHHA) *Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments*[1] and the Bay Area Air Quality Management District (BAAQMD) *Health Risk Screening Analysis Guidelines*.[2] This HRA addresses the emissions from construction activities including onsite equipment and haul trucks. Specific focus is on diesel particulate matter (DPM) and particulate matter equal to or less than 2.5 micrometers (fine particulate or $PM_{2.5}$) emissions. Gasoline-fueled vehicles emit air toxics in much smaller quantities and toxicity levels compared to DPM. Thus, natural gas and gasoline-fueled emission sources were not included in the HRA. Diesel-fuel standby generators used during operations were included in the HRA.

According to CalEPA, a HRA should not be interpreted as the expected rates of cancer or other potential human health effects, but rather as estimates of potential risk or likelihood of adverse effects based on current knowledge, under a number of highly conservative assumptions and the best assessment tools currently available.

TERMS AND DEFINITIONS

As the practice of conducting an HRA is particularly complex and involves concepts that are not altogether familiar to most people, several terms and definitions are provided that are considered essential to the understanding of the approach, methodology and results:

> *Acute effect* – a health effect (non-cancer) produced within a short period of time (few minutes to several days) following an exposure to toxic air contaminants (TAC).
>
> *Cancer risk* – the probability of an individual contracting cancer from a lifetime (i.e., 70 year) exposure to TAC such as DPM in the ambient air.

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[1] Office of Environmental Health Hazard Assessment, *Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments*, March 6, 2015, http://oehha.ca.gov/air/hot_spots/hotspots2015.html.

[2] Bay Area Air Quality Management District, *Health Risk Screening Analysis Guidelines*, January 2010, http://www.baaqmd.gov/~/media/Files/Engineering/Air%20Toxics%20Programs/hrsa_guidelines.ashx

Chronic effect – a health effect (non-cancer) produced from a continuous exposure occurring over an extended period (weeks, months, years).

Hazard Index (HI) – the unitless ratio of an exposure level over the acceptable reference dose. The HI can be applied to multiple compounds in an additive manner.

Hazard Quotient (HQ) – the unitless ratio of an exposure level over the acceptable reference dose. The HQ is applied to individual compounds.

Toxic Air Contaminants – any air pollutant that can cause short-term (acute) and/or long-term (chronic or carcinogenic, i.e., cancer causing) adverse human health effects (i.e., injury or illness). The current California list of TAC lists approximately 200 compounds, including particulate emissions from diesel-fueled engines.

Human Health Effects - comprise disorders such as eye watering, respiratory or heart ailments, and other (i.e., non-cancer) related diseases.

Health Risk Assessment – an analysis designed to predict the generation and dispersion of TAC in the outdoor environment, evaluate the potential for exposure of human populations, and to assess and quantify both the individual and population-wide health risks associated with those levels of exposure.

Incremental – under CEQA, the net difference (or change) in conditions or impacts when comparing the baseline to future year project conditions.

Maximum exposed individual (MEI) – an individual assumed to be located at the point where the highest concentrations of TAC, and therefore, health risks are predicted to occur.

Non-cancer risks – health risks such as eye watering, respiratory or heart ailments, and other non-cancer related diseases.

Receptors – the locations where potential health impacts or risks are predicted (i.e., schools, residences, and recreational sites).

LIMITATIONS AND UNCERTAINTIES

There are several important limitations and uncertainties commonly associated with an HRA due to the wide variability of human exposures to TAC, the extended timeframes over which the exposures are evaluated, and the inability to verify the results. Limitations and uncertainties associated with the HRA and identified by the CalEPA include: (a.) lack of reliable monitoring data; (b.) extrapolation of toxicity data in animals to humans; (c.) estimation errors in calculating TAC emissions; (d.) concentration prediction errors with dispersion models; and (e.) the variability in lifestyles, fitness and other confounding factors of the human population. This HRA was performed using the best available data and methodologies, notwithstanding the following uncertainties:

- There are uncertainties associated with the estimation of emissions from project activities. Where project-specific data, such as emission factors, are not available, default assumptions in emission models were used.

- The limitations of the air dispersion model provide a source of uncertainty in the estimation of exposure concentrations. According to USEPA, errors due to the limitation of the algorithms implemented in the air dispersion model in the highest estimated concentrations of +/- 10 percent to 40 percent are typical.[3]
- The source parameters used to model emission sources add uncertainty. For all emission sources, the source parameters used source-specific, recommended as defaults, or expected to produce more conservative results. Discrepancies might exist in actual emissions characteristics of an emission source and its representation in the dispersion model.
- The exposure duration estimates do not consider that people do not usually reside at the same location for 30 years and that other exposures (i.e., school children) are also of much shorter durations than was assumed in this HRA. This exposure duration is a highly conservative assumption, since most people do not remain at home all day and on average residents change residences every 11 to 12 years. In addition, this assumption adopts that residents are experiencing outdoor concentrations for the entire exposure period.
- For the risk and hazards calculations as well as the cumulative health impact, numerous assumptions must be made in order to estimate human exposure to pollutants. These assumptions include parameters such as breathing rates, exposure time and frequency, exposure duration, and human activity patterns. While a mean value derived from scientifically defensible studies is the best estimate of central tendency, most of the exposure variables used in this HRA are high-end estimates. The combination of several high-end estimates used as exposure parameters may substantially overestimate pollutant intake. The excess lifetime cancer risks calculated in this HRA are therefore likely to be higher than may be required to be protective of public health.
- The Cal/EPA cancer potency factor for DPM was used to estimate cancer risks associated with exposure to DPM emissions from construction activities. However, the cancer potency factor derived by Cal/EPA for DPM is highly uncertain in both the estimation of response and dose. In the past, due to inadequate animal test data and epidemiology data on diesel exhaust, the International Agency for Research on Cancer (IARC), a branch of the World Health Organization, had classified DPM as Probably Carcinogenic to Humans (Group 2); the USEPA had also concluded that the existing data did not provide an adequate basis for quantitative risk assessment.[4] However, based on two recent scientific studies,[5] IARC recently re-classified DPM

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[3] US Environmental Protection Agency, *Guideline on Air Quality Models (Revised), 40 Code of Federal Regulations, Part 51, Appendix W*, November 2005, https://www3.epa.gov/scram001/guidance/guide/appw_05.pdf

[4] US Environmental Protection Agency, *Health Assessment Document for Diesel Engine Exhaust*, May 2002, https://cfpub.epa.gov/si/si_public_record_report.cfm?dirEntryId=29060

[5] Attfield MD, Schleiff PL, Lubin JH, Blair A, Stewart PA, Vermeulen R, Coble JB, Silverman DT, *The Diesel Exhaust in Miners Study: A Nested Case-Control Study of Lung Cancer and Diesel Exhaust*, June 2012, https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3369553/

as Carcinogenic to Humans to Group 1,[6] which means that the agency has determined that there is "sufficient evidence of carcinogenicity" of a substance in humans and represents the strongest weight-of-evidence rating in IARC's carcinogen classification scheme. This determination by the IARC may provide additional impetus for the USEPA to identify a quantitative dose-response relationship between exposure to DPM and cancer.

In summary, the estimated health impacts are based primarily on a series of conservative assumptions related to predicted environmental concentrations, exposure, and chemical toxicity. The use of conservative assumptions tends to produce upper-bound estimates of risk. BAAQMD acknowledges this uncertainty by stating: "the methods used [to estimate risk] are conservative, meaning that the real risks from the source may be lower than the calculations, but it is unlikely that they will be higher." The USEPA notes that the conservative assumptions used in a HRA are intended to assure that the estimated risks do not underestimate the actual risks posed by a site and that the estimated risks do not necessarily represent actual risks experienced by populations at or near a site.[7]

HAZARDS IDENTIFICATION

California Air Resources Board (CARB) has developed a list of TAC, where a TAC is "an air pollutant which may cause or contribute to an increase in mortality or in serious illness, or which may pose a present or potential hazard to human health (California Health and Safety Code Section 39655). All USEPA hazardous air pollutants are TAC. CARB administers the Air Toxics "Hot Spots" program under Assembly Bill 2588 "Hot Spots" Information and Assessment Act, which requires periodic local review of facilities which emit TAC. Local air agencies periodically must prioritize stationary sources of TAC and prepare health risk assessments for high-priority sources.

Diesel exhaust is a complex mixture of numerous individual gaseous and particulate compounds emitted from diesel-fueled combustion engines. Diesel particulate matter is formed primarily through the incomplete combustion of diesel fuel. DPM is removed from the atmosphere through physical processes including atmospheric fall-out and washout by rain. Humans can be exposed to airborne DPM by deposition on water, soil, and vegetation; although the main pathway of exposure is inhalation. Cal/EPA has concluded that potential cancer risk from inhalation exposure to whole diesel exhaust outweigh the multi-pathway cancer risk from the speciated components.

In August 1998, the CARB identified DPM as an air toxic. CARB developed the *Risk Reduction Plan to Reduce Particulate Matter Emissions from Diesel- Fueled Engines and Vehicles* and *Risk Management Guidance for the Permitting of New Stationary Diesel-Fueled Engines* and approved these documents on September 28, 2000.[8] [9] The documents represent proposals to reduce DPM emissions, with the goal of

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[6] International Agency for Research on Cancer, *Diesel Engine Exhaust Carcinogenic*, June 2012, https://www.iarc.fr/en/media-centre/pr/2012/pdfs/pr213_E.pdf

[7] US Environmental Protection Agency, *Risk Assessment Guidance for Superfund Human Health Risk Assessment*, December 1989, https://www.epa.gov/sites/production/files/2015-09/documents/rags_a.pdf

[8] California Air Resources Board, *Risk Reduction Plan to Reduce Particulate Matter Emissions from Diesel-Fueled Engines and Vehicles*, October 2000, http://www.arb.ca.gov/diesel/documents/rrpfinal.pdf

[9] California Air Resources Board, *Risk Management Guidance for the Permitting of New Stationary Diesel-Fueled Engines*, October 2000, https://www.arb.ca.gov/diesel/documents/rmgFinal.pdf

reducing emissions and the associated health risk by 75 percent in 2010 and by 85 percent in 2020. The program aimed to require the use of state-of-the-art catalyzed DPM filters and ultra-low-sulfur diesel fuel.

In 2001, CARB assessed the state-wide health risks from exposure to diesel exhaust and to other toxic air contaminants. It is difficult to distinguish the health risks of diesel emissions from those of other air toxics, since diesel exhaust contains approximately 40 different TAC. The CARB study detected diesel exhaust by using ambient air carbon soot measurements as a surrogate for diesel emissions. The study reported that the state-wide cancer risk from exposure to diesel exhaust was about 540 per million population as compared to a total risk for exposure to all ambient air toxics of 760 per million. This estimate, which accounts for about 70 percent of the total risk from TAC, included both urban and rural areas in the state. The estimate can also be considered an average worst-case for the state, since it assumes constant exposure to outdoor concentrations of diesel exhaust and does not account for expected lower concentrations indoors, where most of time is spent. DPM is estimated to increase statewide cancer risk by 520 cancers per million residents exposed over a lifetime.[10]

Exposure to DPM results in a greater incidence of chronic non-cancer health effects, such as cough, labored breathing, chest tightness, wheezing, and bronchitis. Individuals particularly vulnerable to DPM are children, whose lung tissue is still developing, the elderly and people with illnesses who may have other serious health problems that can be aggravated by exposure to DPM. In general, children are more vulnerable than adults to air pollutants because they have higher inhalation rates, narrower airways, and less mature immune systems. In addition, children with allergies may have an enhanced allergic response when exposed to diesel exhaust.

EXPOSURE ASSESSMENT

Dispersion is the process by which atmospheric pollutants disseminate due to wind and vertical stability. The results of a dispersion analysis are used to assess pollutant concentrations at or near an emission source. The results of an analysis allow predicted concentrations of pollutants to be compared directly to air quality standards and other criteria such as health risks based on modeled concentrations.

A rising pollutant plume reacts with the environment in several ways before it levels off. First, the plume's own turbulence interacts with atmospheric turbulence to entrain ambient air. This mixing process reduces and eventually eliminates the density and momentum differences that cause the plume to rise. Second, the wind transports the plume during its rise and entrainment process. Higher winds mix the plume more rapidly, resulting in a lower final rise. Third, the plume interacts with the vertical temperature stratification of the atmosphere, rising as a result of buoyancy in the unstable-to-neutrally stratified mixed layer. However, after the plume encounters the mixing lid and the stably stratified air above, its vertical motion is dampened.

Molecules of gas or small particles injected into the atmosphere will separate from each other as they are acted on by turbulent eddies. The Gaussian mathematical model such as AERMOD simulates the

[10] California Air Resources Board, *Summary: Diesel Particulate Matter Health Impacts*, April 12, 2016, https://www.arb.ca.gov/research/diesel/diesel-health_summ.htm

dispersion of the gas or particles within the atmosphere. The formulation of the Gaussian model is based on the following assumptions:

- The predictions are not time-dependent (all conditions remain unchanged with time)
- The wind speed and direction are uniform, both horizontally and vertically, throughout the region of concern
- The rate of diffusion is not a function of position
- Diffusion in the direction of the transporting wind is negligible when compared to the transport flow

Dispersion Modeling Approach

Air dispersion modeling was performed to estimate the downwind dispersion of DPM exhaust emissions resulting from construction activities. The following sections present the fundamental components of an air dispersion modeling analysis including air dispersion model selection and options, receptor locations, meteorological data, and source exhaust parameters.

Model Selection and Options

AERMOD (Version 23132)[11] was used for the dispersion analysis. AERMOD is the USEPA preferred atmospheric dispersion modeling system for general industrial sources. The model can simulate point, area, volume, and line sources. AERMOD is the appropriate model for this analysis based on the coverage of simple, intermediate, and complex terrain. It also predicts both short-term and long-term (annual) average concentrations. The model was executed using the regulatory default options (stack-tip downwash, buoyancy-induced dispersion, and final plume rise), default wind speed profile categories, default potential temperature gradients, and assuming no pollutant decay.

The selection of the appropriate dispersion coefficients depends on the land use within three kilometers (km) of the project site. The types of land use were based on the classification method defined by Auer (1978); using pertinent United States Geological Survey (USGS) 1:24,000 scale (7.5 minute) topographic maps of the area. If the Auer land use types of heavy industrial, light-to-moderate industrial, commercial, and compact residential account for 50 percent or more of the total area, the USEPA *Guideline on Air Quality Models*[12] recommends using urban dispersion coefficients; otherwise, the appropriate rural coefficients can be used. Based on observation of the area surrounding the project site, rural (urban is only designated within dense city centers such as downtown San Francisco) dispersion coefficients were applied within AERMOD.

Receptor Locations

Some receptors are considered more sensitive to air pollutants than others, because of preexisting health problems, proximity to the emissions source, or duration of exposure to air pollutants. Land uses

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[11] US Environmental Protection Agency, AERMOD Modeling System, https://www.epa.gov/scram/air-quality-dispersion-modeling-preferred-and-recommended-models

[12] US Environmental Protection Agency, *Guideline on Air Quality Models (Revised), 40 Code of Federal Regulations, Part 51, Appendix W*, November 2005, https://www3.epa.gov/scram001/guidance/guide/appw_05.pdf

such as primary and secondary schools, hospitals, and convalescent homes are considered to be relatively sensitive to poor air quality because the very young, the old, and the infirm are more susceptible to respiratory infections and other air quality-related health problems than the general public. Residential areas are also considered sensitive to poor air quality because people in residential areas are often at home for extended periods. Recreational land users are moderately sensitive to air pollution because vigorous exercise associated with recreation places having a high demand on respiratory system function.

BAAQMD considers the relevant zone of influence for an assessment of air quality health risks to be within 1,000 feet of a project site. The VPS is in proximity to residential zoned land. The project site is within 1,000 feet of residence to the northwest, northeast, and south. Yavneh Day School and Village Elementary School are located more than 1,000 feet from the project site. **Figure B-1** displays the sensitive receptors within 1,000 feet of the project site. The sensitive receptors include residences, school, assisted living facilities, and day care. The nearest sensitive receptors to the Vasona Pump Station (VPS) are the adjacent single-family residences at Mozart Avenue (40 feet away) and Mojonera Court (40 feet away) and the multi-family residential units on the north side of Los Gatos Creek, adjacent to the off-site staging area (60 feet away). Receptors were placed at a height of 1.8 meters (typical breathing height). No school, assisted living facilities, and day care are located within 1,000 feet of the project site. Terrain elevations for receptor locations were used based on available USGS information for the area.

Meteorological Data

Hourly meteorological data from San Jose International Airport (surface data), located approximately 5.7 miles to the west-southwest of the proposed project, and Oakland International Airport (upper air) were used in the dispersion modeling analysis. **Figure B-3** displays the annual wind rose. Wind directions are predominantly from the northwest and southeast with a low frequency of calm wind speed conditions (1.2 percent), as shown in **Figure B-4**. The average annual wind speed is 7.1 miles per hour (3.2 meters per second).

Figure B-1
Health Risk Assessment Sensitive Receptors

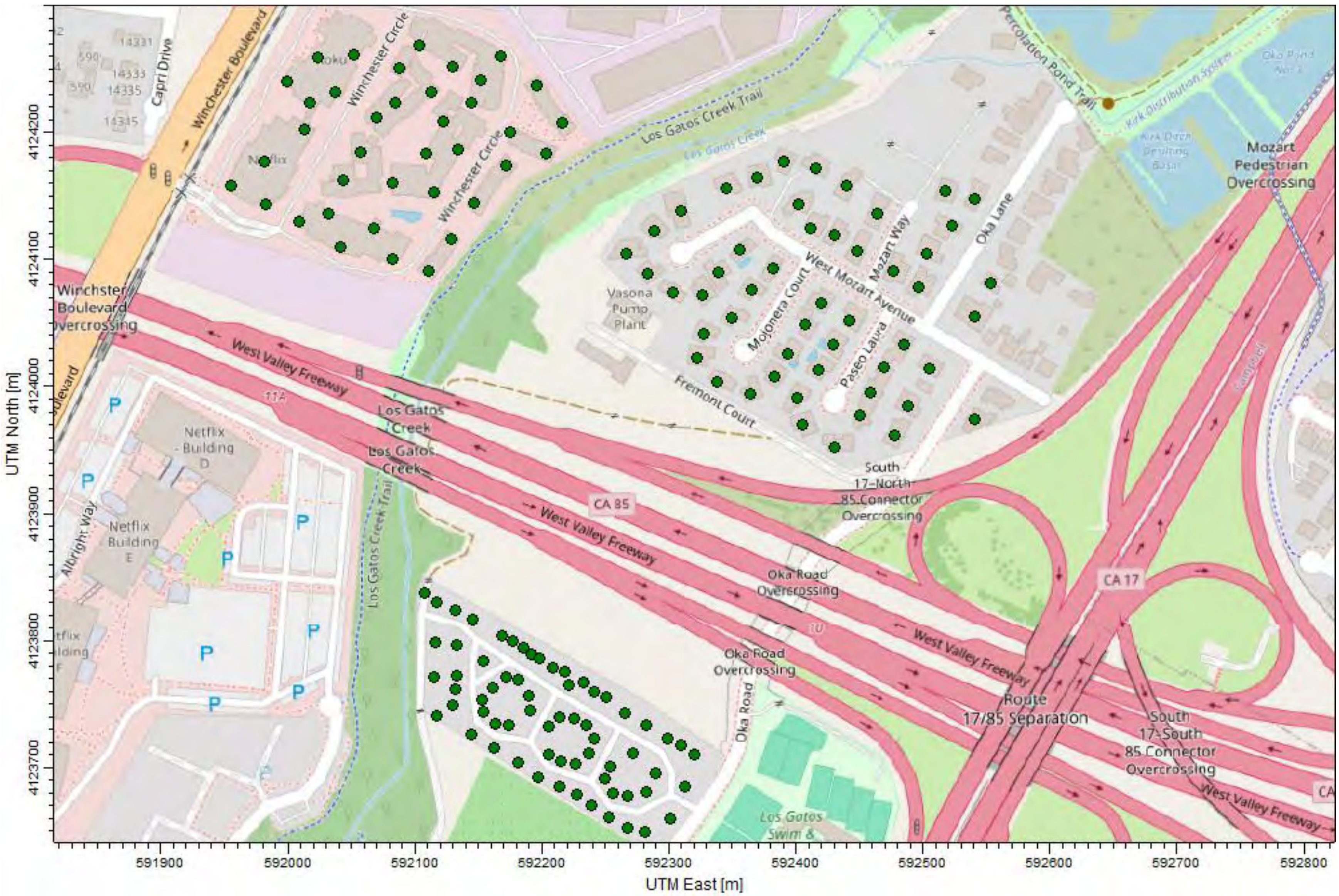


Figure B-2
Windrose for San Jose International Airport

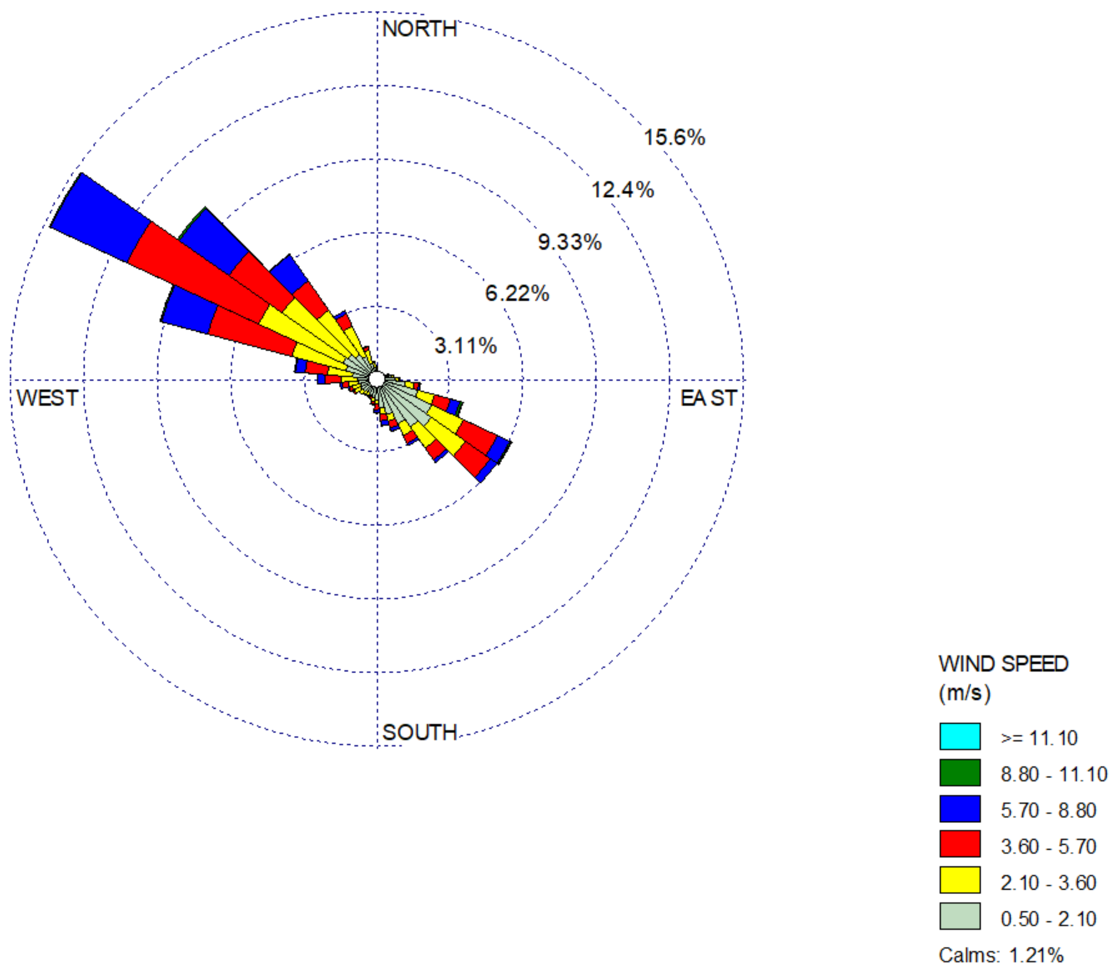
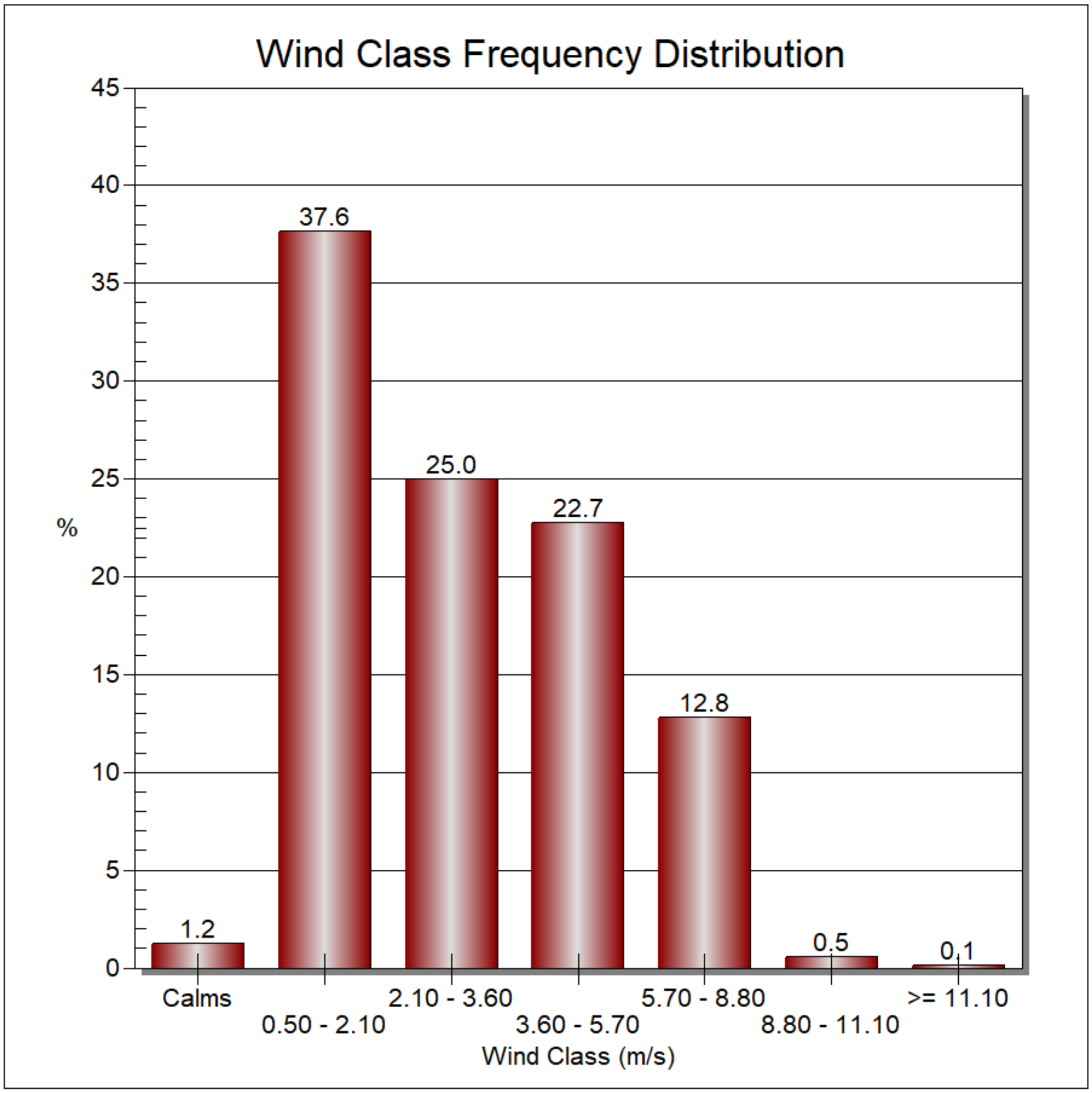


Figure B-4
Wind Speed Distribution for San Jose International Airport



Source Release Characteristics

Construction equipment activities were treated as an area source. The release height of the off-road equipment exhaust was 5.0 meters (16.4 feet) and an initial vertical dimension of 1.4 meters (4.6 feet), which reflects the height of the equipment plus an additional height of the exhaust plume above the exhaust point to account for plume rise due to buoyancy and momentum. Fugitive dust-generating activities were treated as an area source. The release height of the fugitive dust was 0.0 meters (0.0 feet) and an initial vertical dimension of 1.0 meter (3.3 feet). Haul trucks were treated as a line source (i.e., volume sources placed at regular intervals) located along an access road. The haul trucks were assigned a release height of 5.0 meters (16.4 feet) and an initial vertical dimension of 1.4 meters (4.6 feet), which accounts for dispersion from the movement of vehicles.[13] [14] Construction activities would be conducted from 7 a.m. to 7 p.m. Monday through Friday.

The new diesel standby generator, rated at 1,250 kilowatts (12,676 horsepower), would provide backup power in the event of power interruptions. The standby generator would be tested monthly for two hours. The standby generator would be Tier-4 rated. It was assumed that the standby generator would be operated for 76 hours a year during power outages (thus, a total of 100 hours per year). The new standby generator used during operations was assigned a stack with a height of 10 feet (3.0 meters), a diameter of 0.75 foot (0.2 meter), an exit temperature of 850 Fahrenheit (454 Celsius), and an exhaust flow of 3,500 cubic feet (99 cubic meters) per minute. Terrain elevations for emission source locations were used based on available USGS information for the area. AERMAP (Version 18081)[15] was used to develop the terrain elevations.

EXPOSURE PARAMETERS

This HRA was conducted following methodologies in OEHHA's *Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments*.[16] This was accomplished by applying the estimated concentrations at the receptors analyzed to the established cancer risk estimates and acceptable reference concentrations for non-cancer health effects.

OEHHA's revisions to its *Guidance Manual* were primarily designed to ensure that the greater sensitivity of children to cancer and other health risks is reflected in HRAs. For example, OEHHA now recommends that risks be analyzed separately for multiple age groups, focusing especially on young children and teenagers, rather than the past practice of analyzing risks to the general population, without distinction

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[13] While haul truck emissions contribute substantially to overall project emissions, they are spread over many miles. Hence, the portion of trucking emissions that would impact one receptor is much smaller than the emissions that the clustered off-road activity at the project site would impact a receptor near the site. For example, the DPM emissions from truck travel within 1,000 feet of the project are less than one percent of the total off-road DPM emissions.

[14] South Coast Air Quality Management District, Final Localized Significance Threshold Methodology. July 2008, http://www.aqmd.gov/docs/default-source/ceqa/handbook/localized-significance-thresholds/final-lst-methodology-document.pdf?sfvrsn=2

[15] US Environmental Protection Agency, AERMAP, https://www.epa.gov/scram/air-quality-dispersion-modeling-preferred-and-recommended-models

[16] Office of Environmental Health Hazard Assessment, *Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments*, March 6, 2015, http://oehha.ca.gov/air/hot_spots/hotspots2015.html

by age. OEHHA also now recommends that statistical "age sensitivity factors" be incorporated into an HRA, and that children's relatively high breathing rates be accounted for. On the other hand, the *Guidance Manual* revisions also include some changes that would reduce calculated health risks. For example, under the former guidance, OEHHA recommended that residential cancer risks be assessed by assuming 70 years of exposure at a residential receptor; under the *Guidance Manual*, this assumption is lessened to 30 years.

OEHHA has developed exposure factors (e.g., daily breathing rates) for six age groups including the last trimester to birth, birth to 2 years, 2 to 9 years, 2 to 16 years, 16 to 30 years, and 16 to 70 years. These age bins allow for more refined exposure information to be used when estimating exposure and the potential for developing cancer over a lifetime. This means that exposure variates are needed for the third trimester, ages zero to less than two, ages two to less than nine, ages two to less than 16, ages 16 to less than 30, and ages 16 to 70. Residential receptors utilize the 95th percentile breathing rate values. The breathing rates are age-specific and are 1,090 liters per kilogram-day for ages less than 2 years, 745 liters per kilogram-day for ages 2 to 16 years, 335 liters per kilogram-day for ages 16 to 30 years, and 290 liters per kilogram-day for ages 30 to 70 years. A school child breathing rate is 520 liters per kilogram-day and an off-site worker breathing rate is 230 liters per kilogram-day.

OEHHA developed age sensitivity factors (ASF) to consider the increased sensitivity to carcinogens during early-in-life exposures. OEHHA recommends that cancer risks be weighted by a factor of 10 for exposures that occur from the third trimester of pregnancy to 2 years of age, and by a factor of 3 for exposures from 2 years through 15 years of age.

Based on OEHHA recommendations, the cancer risk to residential receptors assumes exposure occurs 24 hours per day for 350 days per year while accounting for a percentage of time at home. OEHHA evaluated information from activity pattern databases to estimate the fraction of time at home (FAH) during the day. This information was used to adjust exposure duration and cancer risk based on the assumption that a person is not present at home continuously for 24 hours and therefore exposure to emissions is not occurring when a person is away from their home. In general, the FAH factors are age-specific and are 0.85 for ages less than 2 years, 0.72 for ages 2 to 16 years, and 0.73 for ages 30 to 70 years.

OEHHA has decreased the exposure duration currently being used for estimating cancer risk at the maximum exposed individual resident from 70 years to 30 years. This is based on studies showing that 30 years is a reasonable estimate of the 90th to 95th percentile of residency duration in the population. Additionally, OEHHA recommends using the 9 and 70-year exposure duration to represent the potential impacts over the range of residency periods.

Given the exposure durations of less than 24 hours, sensitive recreational receptors were evaluated for acute impacts only. Based on OEHHA recommendations, for children at school sites, exposure is assumed to occur 10 hours per day for 180 days (or 36 weeks) per year. Cancer risk estimates for children at school sites are calculated based on 9-year exposure duration. School sites also include teachers and other adult staff which are treated as off-site workers.

RISK CHARACTERIZATION

Cancer risk is defined as the lifetime probability of developing cancer from exposure to carcinogenic substances. Cancer risks are expressed as the chance in one million of getting cancer (i.e., number of cancer cases among one million people exposed). The cancer risks are assumed to occur exclusively through the inhalation pathway. The cancer risk can be estimated by using the cancer potency factor (milligrams per kilogram of body weight per day [mg/kg-day]), the 30-year annual average concentration (microgram per cubic meter [$\mu g/m^3$]), and the lifetime exposure adjustment.

Following guidelines established by OEHHA, the incremental cancer risks attributable to the proposed project were calculated by applying exposure parameters to modeled DPM concentrations in order to determine the inhalation dose (mg/kg-day) or the amount of pollutants inhaled per body weight mass per day. The cancer risks occur exclusively through the inhalation pathway; therefore, the cancer risks can be estimated from the following equation:

$$\text{Dose-inh} = \frac{C_{air} * \{DBR\} * A * ASF * FAH * EF * ED * 10^{-6}}{AT}$$

where:

Dose-inh	= Dose of the toxic substance through inhalation in mg/kg-day
10^{-6}	= Micrograms to milligrams conversion, Liters to cubic meters conversion
C_{air}	= Concentration in air in microgram (µg)/cubic meter (m^3)
{DBR}	= Daily breathing rate in liter (L)/kg body weight – day
A	= Inhalation absorption factor, 1.0
ASF	= Age Sensitivity Factor
EF	= Exposure frequency (days/year)
ED	= Exposure duration (years)
FAH	= Fraction of Time at Home
AT	= Averaging time period over which exposure is averaged in days (25,550 days for a 70-year cancer risk)

To determine incremental cancer risk, the estimated inhalation dose attributed to the proposed project was multiplied by the cancer potency slope factor (cancer risk per mg/kg-day). The cancer potency slope factor is the upper bound on the increased cancer risk from a lifetime exposure to a pollutant. These slope factors are based on epidemiological studies and are different values for different pollutants. This allows the estimated inhalation dose to be equated to a cancer risk.

Non-cancer adverse health impacts, acute (short-term) and chronic (long-term), are measured against a hazard index (HI), which is defined as the ratio of the predicted incremental exposure concentration from the proposed project to a published reference exposure level (REL) that could cause adverse health effects as established by OEHHA. The ratio (referred to as the Hazard Quotient [HQ]) of each non-carcinogenic substance that affects a certain organ system is added to produce an overall HI for that organ system. The overall HI is calculated as the total for each organ system. If the overall HI for the highest-impacted organ system is greater than one, then the impact is significant.

The HI is an expression used for the potential for non-cancer health effects. The relationship for the non-cancer health effects is given by the annual concentration (in $\mu g/m^3$) and the REL (in $\mu g/m^3$). The acute hazard index was determined using the “simple” concurrent maximum approach, which tends to be conservative (i.e., overpredicts).

The relationship for the non-cancer health effects is given by the following equation:

$$HI = C/REL$$

where:

HI	= Hazard index; an expression of the potential for non-cancer health effects.
C	= Annual average concentration ($\mu g/m^3$) during the 70-year exposure period.
REL	= Concentration at which no adverse health effects are anticipated.

The chronic REL for DPM was established by the California OEHHA as 5 $\mu g/m^3$.[17] There is no acute REL for DPM.

[17] Office of Environmental Health Hazards Assessment - Acute, 8-hour, and Chronic Reference Exposure Levels, June 2014, http://www.oehha.ca.gov/air/allrels.html

Attachment B

Health Risk Assessment Results

- **Construction**
- **Operations – Generators**

AERMOD Summary

Health Risk Assessment Assumptions

5	Chronic Reference Exposure Level (ug/m3) for DPM	
1.1	Cancer Potency Slope Factor (cancer risk per mg/kg-day) for DPM	
350	days per year	
25,550	days per lifetime	
1,090	95th Percentile Daily Breathing Rates (L/kg-day)	0<2 Years
861	95th Percentile Daily Breathing Rates (L/kg-day)	2<9 Years
745	95th Percentile Daily Breathing Rates (L/kg-day)	2<16 Years
335	95th Percentile Daily Breathing Rates (L/kg-day)	16<30 Years
290	95th Percentile Daily Breathing Rates (L/kg-day)	30<70 Years
0.85	fraction of · 0<2 Years	
0.72	fraction of · 2<16 Years	
0.73	fraction of · 16<70 Years	

Project: Valley Water Vasona Pumping Plant Upgrades
Date: 9/28/2024
Condition: Unmitigated Construction
Receptor: Existing Residence

Exposure Year	Calender Year	Annual DPM Concentration (ug/m3)	Annual PM2.5 Concentration (ug/m3)	Daily Breathing Rates (L/kg-day)	Exposure Factor	fraction of time at home	Cancer Risk
1	2025	0.17	0.19	1,090	10.0	0.85	23.9
2	2026	0.06	0.07	1,090	10.0	0.85	9.02
3	2027			745	4.75	0.72	
4	2028			745	3.00	0.72	
5	2029			745	3.00	0.72	
6	2030			745	3.00	0.72	
7	2031			745	3.00	0.72	
8	2032			745	3.00	0.72	
9	2033			745	3.00	0.72	
10	2034			745	3.00	0.72	
11	2035			745	3.00	0.72	
12	2036			745	3.00	0.72	
13	2037			745	3.00	0.72	
14	2038			745	3.00	0.72	
15	2039			745	3.00	0.72	
16	2040			745	3.00	0.72	
17	2041			335	1.70	0.73	
18	2042			335	1.00	0.73	
19	2043			335	1.00	0.73	
20	2044			335	1.00	0.73	
21	2045			335	1.00	0.73	
22	2046			335	1.00	0.73	
23	2047			335	1.00	0.73	
24	2048			335	1.00	0.73	
25	2049			335	1.00	0.73	
26	2050			335	1.00	0.73	
27	2051			335	1.00	0.73	
28	2052			335	1.00	0.73	
29	2053			335	1.00	0.73	
30	2054			335	1.00	0.73	

0.19	Maximum Annual PM2.5 Concentration (ug/m3)
0.3	Significance Threshold (ug/m3)
No	Significant?
0.03	Chronic Hazard Impact
1	Significance Threshold
No	Significant?
32.9	Cancer Risk (Child)
10	Significance Threshold
Yes	Significant?
1.48	Cancer Risk (Adult)
10	Significance Threshold
No	Significant?

Health Risk Assessment Assumptions

5	Chronic Reference Exposure Level (ug/m3) for DPM	
1.1	Cancer Potency Slope Factor (cancer risk per mg/kg-day) for DPM	
350	days per year	
25,550	days per lifetime	
1,090	95th Percentile Daily Breathing Rates (L/kg-day)	0<2 Years
861	95th Percentile Daily Breathing Rates (L/kg-day)	2<9 Years
745	95th Percentile Daily Breathing Rates (L/kg-day)	2<16 Years
335	95th Percentile Daily Breathing Rates (L/kg-day)	16<30 Years
290	95th Percentile Daily Breathing Rates (L/kg-day)	30<70 Years
0.85	fraction of 0<2 Years	
0.72	fraction of 2<16 Years	
0.73	fraction of 16<70 Years	

Project: Valley Water Vasona Pumping Plant Upgrades
Date: 9/28/2024
Condition: Mitigated Construction
Receptor: Existing Residence

Exposure Year	Calender Year	Annual DPM Concentration (ug/m3)	Annual PM2.5 Concentration (ug/m3)	Daily Breathing Rates (L/kg-day)	Exposure Factor	fraction of time at home	Cancer Risk
1	2025	0.02	0.03	1,090	10.0	0.85	2.88
2	2026	0.01	0.01	1,090	10.0	0.85	1.52
3	2027			745	4.75	0.72	
4	2028			745	3.00	0.72	
5	2029			745	3.00	0.72	
6	2030			745	3.00	0.72	
7	2031			745	3.00	0.72	
8	2032			745	3.00	0.72	
9	2033			745	3.00	0.72	
10	2034			745	3.00	0.72	
11	2035			745	3.00	0.72	
12	2036			745	3.00	0.72	
13	2037			745	3.00	0.72	
14	2038			745	3.00	0.72	
15	2039			745	3.00	0.72	
16	2040			745	3.00	0.72	
17	2041			335	1.70	0.73	
18	2042			335	1.00	0.73	
19	2043			335	1.00	0.73	
20	2044			335	1.00	0.73	
21	2045			335	1.00	0.73	
22	2046			335	1.00	0.73	
23	2047			335	1.00	0.73	
24	2048			335	1.00	0.73	
25	2049			335	1.00	0.73	
26	2050			335	1.00	0.73	
27	2051			335	1.00	0.73	
28	2052			335	1.00	0.73	
29	2053			335	1.00	0.73	
30	2054			335	1.00	0.73	

0.03	Maximum Annual PM2.5 Concentration (ug/m3)
0.3	Significance Threshold (ug/m3)
No	Significant?
0.00	Chronic Hazard Impact
1	Significance Threshold
No	Significant?
4.41	Cancer Risk (Child)
10	Significance Threshold
No	Significant?
0.20	Cancer Risk (Adult)
10	Significance Threshold
No	Significant?

Health Risk Assessment Assumptions

5	Chronic Reference Exposure Level (ug/m3) for DPM	
1.1	Cancer Potency Slope Factor (cancer risk per mg/kg-day) for DPM	
350	days per year	
25,550	days per lifetime	
1,090	95th Percentile Daily Breathing Rates (L/kg-day)	0<2 Years
861	95th Percentile Daily Breathing Rates (L/kg-day)	2<9 Years
745	95th Percentile Daily Breathing Rates (L/kg-day)	2<16 Years
335	95th Percentile Daily Breathing Rates (L/kg-day)	16<30 Years
290	95th Percentile Daily Breathing Rates (L/kg-day)	30<70 Years
0.85	fraction of ·	0<2 Years
0.72	fraction of ·	2<16 Years
0.73	fraction of ·	16<70 Years

Project: Valley Water Vasona Pumping Plant Upgrades
Date: 5/8/2024
Condition: Operations
Receptor: Existing Residence

Exposure Year	Calender Year	Annual DPM Concentration (ug/m3)	Annual PM2.5 Concentration (ug/m3)	Daily Breathing Rates (L/kg-day)	Exposure Factor	fraction of time at home	Cancer Risk
1	2026	0.009	0.009	745	4.75	0.72	0.36
2	2027	0.009	0.009	745	3.00	0.72	0.23
3	2028	0.009	0.009	745	3.00	0.72	0.23
4	2029	0.009	0.009	745	3.00	0.72	0.23
5	2030	0.009	0.009	745	3.00	0.72	0.23
6	2031	0.009	0.009	745	3.00	0.72	0.23
7	2032	0.009	0.009	745	3.00	0.72	0.23
8	2033	0.009	0.009	745	3.00	0.72	0.23
9	2034	0.009	0.009	745	3.00	0.72	0.23
10	2035	0.009	0.009	745	3.00	0.72	0.23
11	2036	0.009	0.009	745	3.00	0.72	0.23
12	2037	0.009	0.009	745	3.00	0.72	0.23
13	2038	0.009	0.009	745	3.00	0.72	0.23
14	2039	0.009	0.009	745	3.00	0.72	0.23
15	2040	0.009	0.009	335	1.70	0.73	0.06
16	2041	0.009	0.009	335	1.00	0.73	0.03
17	2042	0.009	0.009	335	1.00	0.73	0.03
18	2043	0.009	0.009	335	1.00	0.73	0.03
19	2044	0.009	0.009	335	1.00	0.73	0.03
20	2045	0.009	0.009	335	1.00	0.73	0.03
21	2046	0.009	0.009	335	1.00	0.73	0.03
22	2047	0.009	0.009	335	1.00	0.73	0.03
23	2048	0.009	0.009	335	1.00	0.73	0.03
24	2049	0.009	0.009	335	1.00	0.73	0.03
25	2050	0.009	0.009	335	1.00	0.73	0.03
26	2051	0.009	0.009	335	1.00	0.73	0.03
27	2052	0.009	0.009	335	1.00	0.73	0.03
28	2053	0.009	0.009	335	1.00	0.73	0.03
29	2054	0.009	0.009	335	1.00	0.73	0.03
30	2055	0.009	0.009	335	1.00	0.73	0.03

0.01	Maximum Annual PM2.5 Concentration (ug/m3)
0.3	Significance Threshold (ug/m3)
No	Significant?
0.00	Chronic Hazard Impact
1	Significance Threshold
No	Significant?
3.44	Cancer Risk (Child)
10	Significance Threshold
No	Significant?
1.05	Cancer Risk (Child)
10	Significance Threshold
No	Significant?

Control Pathway

AERMOD

Dispersion Options

Titles
C:\Users\MikeRatte\Documents\Projects\Valley Water Vasona Pumping Pl

Dispersion Options
- [x] Regulatory Default
- [ ] Non-Default Options

Dispersion Coefficient
Rural

Output Type
- [x] Concentration
- [ ] Total Deposition (Dry & Wet)
- [ ] Dry Deposition
- [ ] Wet Deposition

Plume Depletion
- [ ] Dry Removal
- [ ] Wet Removal

Output Warnings
- [ ] No Output Warnings
- [ ] Non-fatal Warnings for Non-sequential Met Data

Pollutant / Averaging Time / Terrain Options

Pollutant Type
OTHER - DPM

Averaging Time Options

Hours: [ ] 1 [ ] 2 [ ] 3 [ ] 4 [ ] 6 [ ] 8 [ ] 12 [ ] 24

[ ] Month [x] Period [ ] Annual

Exponential Decay
Option not available

Terrain Height Options
- [ ] Flat
- [x] Elevated

SO: Meters
RE: Meters
TG: Meters

Flagpole Receptors
- [x] Yes
- [ ] No

Default Height = 1.80 m

Control Pathway

Optional Files

- [ ] Re-Start File
- [ ] Init File
- [ ] Multi-Year Analyses
- [ ] Event Input File
- [x] Error Listing File

Detailed Error Listing File

Filename: AERMOD.err

Source Pathway - Source Inputs

AERMOD

Point Sources

Source Type	Source ID	X Coordinate [m]	Y Coordinate [m]	Base Elevation (Optional)	Release Height [m]	Emission Rate [g/s]	Gas Exit Temp. [K]	Gas Exit Velocity [m/s]	Stack Inside Diameter [m]
POINT	STCK1	592268.43	4124043.75	83.38	3.05	1.00000	727.59	3.74	0.75

Source Pathway - Source Inputs

AERMOD

Polygon Area Sources

Source Type: AREA POLY

Source: DPM

Base Elevation (Optional)	Release Height [m]	Emission Rate [g/ (s-m^2)]	Initial Vertical Dim. [m]	Number of Vertices (or sides)	X Coordinate for Vertices [m]	Y Coordinate for Vertices [m]
84.90	0.93	0.00007	1.26	13	592188.89	4124083.31
		0.00007			592221.91	4124119.70
		0.00007			592238.54	4124112.76
		0.00007			592232.84	4124090.26
		0.00007			592296.14	4124053.06
		0.00007			592284.62	4124021.62
		0.00007			592401.11	4123953.01
		0.00007			592392.41	4123947.38
		0.00007			592246.24	4123973.58
		0.00007			592156.15	4123999.49
		0.00007			592170.20	4124035.07
		0.00007			592201.79	4124014.99
		0.00007			592230.41	4124055.71

Source Pathway - Source Inputs

AERMOD

Source Type: AREA POLY

Source: PM2.5

Base Elevation (Optional)	Release Height [m]	Emission Rate [g/ (s-m^2)]	Initial Vertical Dim. [m]	Number of Vertices (or sides)	X Coordinate for Vertices [m]	Y Coordinate for Vertices [m]
84.90	0.00	0.00007	0.30	13	592188.89	4124083.31
		0.00007			592221.91	4124119.70
		0.00007			592238.54	4124112.76
		0.00007			592232.84	4124090.26
		0.00007			592296.14	4124053.06
		0.00007			592284.62	4124021.62
		0.00007			592401.11	4123953.01
		0.00007			592392.41	4123947.38
		0.00007			592246.24	4123973.58
		0.00007			592156.15	4123999.49
		0.00007			592170.20	4124035.07
		0.00007			592201.79	4124014.99
		0.00007			592230.41	4124055.71

Source Pathway

Building Downwash Information

Option not in use

Emission Rate Units for Output

For Concentration

Unit Factor:	1E6
Emission Unit Label:	GRAMS/SEC
Concentration Unit Label:	MICROGRAMS/M**3

Source Groups

Source Group ID:	List of Sources in Group (Source Range or Single Sources)
STCK1	STCK1
PM2.5	PM2.5
DPM	DPM

Variable Emissions

Source Pathway

AERMOD

Hour-of-Day / Day-of-Week Emission Rate Variation

Scenario: Scenario 1

Source ID: DPM

Weekdays							
Hour	1 - 6	0.00	0.00	0.00	0.00	0.00	0.00
of	7 - 12	0.00	1.00	1.00	1.00	1.00	1.00
Day	13 - 18	1.00	1.00	1.00	1.00	1.00	1.00
	19 - 24	1.00	0.00	0.00	0.00	0.00	0.00
Saturday							
Hour	1 - 6	0.00	0.00	0.00	0.00	0.00	0.00
of	7 - 12	0.00	0.00	0.00	0.00	0.00	0.00
Day	13 - 18	0.00	0.00	0.00	0.00	0.00	0.00
	19 - 24	0.00	0.00	0.00	0.00	0.00	0.00
Sunday							
Hour	1 - 6	0.00	0.00	0.00	0.00	0.00	0.00
of	7 - 12	0.00	0.00	0.00	0.00	0.00	0.00
Day	13 - 18	0.00	0.00	0.00	0.00	0.00	0.00
	19 - 24	0.00	0.00	0.00	0.00	0.00	0.00

Source ID: STCK1

Weekdays							
Hour	1 - 6	0.00	0.00	0.00	0.00	0.00	0.00
of	7 - 12	0.00	1.00	1.00	1.00	1.00	1.00
Day	13 - 18	1.00	1.00	1.00	1.00	1.00	1.00
	19 - 24	1.00	0.00	0.00	0.00	0.00	0.00
Saturday							
Hour	1 - 6	0.00	0.00	0.00	0.00	0.00	0.00
of	7 - 12	0.00	0.00	0.00	0.00	0.00	0.00
Day	13 - 18	0.00	0.00	0.00	0.00	0.00	0.00
	19 - 24	0.00	0.00	0.00	0.00	0.00	0.00
Sunday							
Hour	1 - 6	0.00	0.00	0.00	0.00	0.00	0.00
of	7 - 12	0.00	0.00	0.00	0.00	0.00	0.00
Day	13 - 18	0.00	0.00	0.00	0.00	0.00	0.00
	19 - 24	0.00	0.00	0.00	0.00	0.00	0.00

Source ID: PM2.5

Weekdays							
Hour	1 - 6	0.00	0.00	0.00	0.00	0.00	0.00
of	7 - 12	0.00	1.00	1.00	1.00	1.00	1.00
Day	13 - 18	1.00	1.00	1.00	1.00	1.00	1.00
	19 - 24	1.00	0.00	0.00	0.00	0.00	0.00
Saturday							
Hour	1 - 6	0.00	0.00	0.00	0.00	0.00	0.00
of	7 - 12	0.00	0.00	0.00	0.00	0.00	0.00
Day	13 - 18	0.00	0.00	0.00	0.00	0.00	0.00
	19 - 24	0.00	0.00	0.00	0.00	0.00	0.00
Sunday							
Hour	1 - 6	0.00	0.00	0.00	0.00	0.00	0.00
of	7 - 12	0.00	0.00	0.00	0.00	0.00	0.00
Day	13 - 18	0.00	0.00	0.00	0.00	0.00	0.00
	19 - 24	0.00	0.00	0.00	0.00	0.00	0.00

Receptor Pathway

AERMOD

Receptor Networks

Note: Terrain Elavations and Flagpole Heights for Network Grids are in Page RE2 - 1 (If applicable)
Generated Discrete Receptors for Multi-Tier (Risk) Grid and Receptor Locations for Fenceline Grid are in Page RE3 - 1 (If applicable)

Discrete Receptors

Discrete Cartesian Receptors

Record Number	X-Coordinate [m]	Y-Coordinate [m]	Group Name (Optional)	Terrain Elevations	Flagpole Heights [m] (Optional)
1	591983.10	4124143.08		86.83	
2	591981.87	4124177.59		86.46	
3	592012.68	4124202.24		86.04	
4	591954.75	4124157.87		86.67	
5	592008.99	4124129.52		86.98	
6	592041.03	4124109.80		87.20	
7	592082.94	4124099.94		87.15	
8	592068.15	4124124.59		87.04	
9	592032.40	4124135.68		86.88	
10	591999.12	4124240.45		85.77	
11	592017.61	4124223.19		85.71	
12	592037.33	4124231.82		85.35	
13	592052.12	4124261.40		84.83	
14	592023.78	4124258.94		85.24	
15	592103.89	4124268.80		84.28	
16	592129.78	4124251.54		84.15	
17	592167.99	4124260.17		83.88	
18	592144.57	4124223.19		84.03	
19	592151.96	4124241.68		83.98	
20	592196.33	4124236.75		83.89	
21	592216.06	4124207.17		84.02	
22	592203.73	4124183.75		84.19	
23	592175.38	4124199.78		84.29	
24	592171.68	4124173.89		84.69	
25	592147.03	4124144.31		85.68	
26	592128.54	4124115.96		86.30	
27	592111.29	4124091.31		86.70	
28	592082.94	4124160.33		86.18	
29	592114.99	4124152.94		85.91	
30	592133.47	4124186.22		84.94	

Receptor Pathway

31	592108.82	4124183.75	85.33
32	592122.38	4124208.40	84.61
33	592057.05	4124184.99	85.90
34	592043.50	4124162.80	86.40
35	592069.38	4124212.10	85.23
36	592112.52	4124231.82	84.41
37	592087.87	4124250.31	84.54
38	592084.17	4124223.19	84.82
39	592345.21	4124156.01	82.32
40	592309.59	4124138.20	82.81
41	592288.64	4124122.48	83.09
42	592266.64	4124104.67	83.39
43	592283.40	4124088.95	83.17
44	592303.31	4124074.29	82.90
45	592369.30	4124164.24	81.99
46	592390.68	4124176.71	81.70
47	592415.61	4124171.37	81.37
48	592439.66	4124158.01	81.04
49	592463.71	4124135.74	80.72
50	592518.04	4124154.44	79.98
51	592541.20	4124148.21	79.67
52	592522.49	4124126.83	79.93
53	592502.90	4124104.57	80.20
54	592496.66	4124077.85	80.28
55	592540.31	4124055.58	79.70
56	592553.67	4124081.41	79.51
57	592505.57	4124014.61	80.17
58	592540.31	4123974.53	79.71
59	592488.65	4123984.33	80.41
60	592477.96	4123961.17	80.55
61	592430.76	4123952.27	81.19
62	592450.35	4123977.20	80.93
63	592459.26	4123995.02	80.80
64	592469.05	4124015.50	80.67
65	592485.09	4124033.32	80.45
66	592442.33	4124052.02	81.02
67	592477.07	4124091.21	80.55
68	592448.57	4124106.35	80.93

Receptor Pathway

69	592430.76	4124118.82	81.17
70	592412.05	4124125.05	81.42
71	592402.26	4124143.76	81.55
72	592355.94	4124107.24	82.18
73	592339.02	4124089.43	82.42
74	592326.55	4124072.50	82.59
75	592327.44	4124041.33	82.58
76	592322.10	4124022.63	82.65
77	592381.77	4124092.99	81.84
78	592364.85	4124076.07	82.07
79	592349.71	4124053.80	82.28
80	592338.13	4124003.92	82.44
81	592363.96	4123994.13	82.09
82	592382.66	4124007.49	81.84
83	592401.36	4123991.45	81.59
84	592404.93	4123970.08	81.54
85	592429.87	4124033.32	81.19
86	592418.29	4124012.83	81.35
87	592393.35	4124026.19	81.69
88	592407.60	4124048.46	81.49
89	592420.07	4124065.38	81.32
90	592107.82	4123837.41	86.52
91	592117.12	4123830.43	86.33
92	592131.53	4123824.39	86.05
93	592145.48	4123816.95	85.73
94	592168.73	4123803.93	85.13
95	592177.10	4123800.21	84.93
96	592185.93	4123794.17	84.73
97	592191.51	4123789.05	84.60
98	592198.48	4123785.80	84.46
99	592208.71	4123778.82	84.27
100	592218.01	4123776.03	84.12
101	592220.80	4123765.34	84.07
102	592232.42	4123766.73	83.82
103	592241.72	4123760.23	83.56
104	592251.02	4123755.58	83.28
105	592265.44	4123743.02	82.84
106	592281.71	4123733.26	82.42

Receptor Pathway

107	592299.38	4123723.49	82.01
108	592310.07	4123717.45	81.86
109	592319.83	4123710.01	81.73
110	592289.15	4123695.60	82.19
111	592271.94	4123711.87	82.56
112	592253.81	4123701.18	82.85
113	592249.63	4123691.41	82.86
114	592267.76	4123677.93	82.49
115	592256.14	4123680.25	82.68
116	592282.17	4123681.18	82.28
117	592300.77	4123660.26	81.91
118	592312.39	4123685.37	81.84
119	592267.76	4123652.36	82.35
120	592252.42	4123660.73	82.62
121	592238.93	4123670.03	82.85
122	592213.83	4123684.90	83.49
123	592236.61	4123710.94	83.26
124	592235.21	4123733.26	83.49
125	592225.45	4123738.84	83.77
126	592205.92	4123732.79	84.05
127	592213.36	4123740.23	83.99
128	592240.79	4123722.56	83.27
129	592215.22	4123704.90	83.64
130	592226.84	4123702.57	83.36
131	592205.92	4123710.48	83.88
132	592174.31	4123733.26	84.61
133	592191.04	4123745.35	84.39
134	592132.46	4123796.96	85.81
135	592115.72	4123798.82	86.18
136	592153.85	4123783.47	85.22
137	592171.98	4123771.38	84.82
138	592160.82	4123762.55	84.90
139	592152.45	4123753.25	84.99
140	592153.85	4123743.49	84.97
141	592163.61	4123734.19	84.80
142	592181.75	4123769.06	84.65
143	592190.11	4123756.97	84.46
144	592132.46	4123772.78	85.62

145	592115.26	4123770.92		86.05	
146	592131.53	4123761.62		85.56	
147	592130.14	4123749.07		85.58	
148	592117.12	4123741.16		85.94	
149	592144.55	4123725.82		85.20	
150	592162.68	4123716.06		84.79	
151	592180.82	4123704.43		84.38	
152	592196.62	4123692.81		83.97	
153	592227.77	4123678.86		83.10	
154	592281.24	4123649.57		82.11	

Plant Boundary Receptors

Meteorology Pathway

AERMOD

Met Input Data

Surface Met Data

Filename: ..\San Jose Intl Airport (KSJC)\AERMOD.SFC

Format Type: Default AERMET format

Profile Met Data

Filename: ..\San Jose Intl Airport (KSJC)\AERMOD.PFL

Format Type: Default AERMET format

Wind Speed

☐ Wind Speeds are Vector Mean (Not Scalar Means)

Wind Direction

Rotation Adjustment [deg]:

Potential Temperature Profile

Base Elevation above MSL (for Primary Met Tower): 10.00 [m]

Meteorological Station Data

Stations	Station No.	Year	X Coordinate [m]	Y Coordinate [m]	Station Name
Surface		2013			
Upper Air		2013			OAKLAND/WSO AP

Data Period

Data Period to Process

Start Date: 1/1/2013 Start Hour: 1 End Date: 12/31/2017 End Hour: 24

Wind Speed Categories

Stability Category	Wind Speed [m/s]	Stability Category	Wind Speed [m/s]
A	1.54	D	8.23
B	3.09	E	10.8
C	5.14	F	No Upper Bound

Results Summary

C:\Users\MikeRatte\Documents\Projects\Valley Water Vasona Pumping Pl

DPM - Concentration - Source Group: DPM

Averaging Period	Rank	Peak	Units	X (m)	Y (m)	ZELEV (m)	ZFLAG (m)	ZHILL (m)	Peak Date, Start Hour
PERIOD		54.28643	ug/m^3	592322.10	4124022.63	82.65	1.80	82.65	

DPM - Concentration - Source Group: PM2.5

Averaging Period	Rank	Peak	Units	X (m)	Y (m)	ZELEV (m)	ZFLAG (m)	ZHILL (m)	Peak Date, Start Hour
PERIOD		56.96650	ug/m^3	592322.10	4124022.63	82.65	1.80	82.65	

DPM - Concentration - Source Group: STCK1

Averaging Period	Rank	Peak	Units	X (m)	Y (m)	ZELEV (m)	ZFLAG (m)	ZHILL (m)	Peak Date, Start Hour
PERIOD		23.75176	ug/m^3	592322.10	4124022.63	82.65	1.80	82.65	

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Appendix B.
Biological Resources Evaluation

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Biological Resources Evaluation Report

Vasona Pump Station Upgrade Project
Los Gatos, Santa Clara County, California

Prepared for:

Ardurra Group, Inc.
3737 Birch Street, Suite 250
Newport Beach, CA 92660
Contact: Lori E. Trottier | 949/482-028

Prepared by:

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1720 Solano Avenue
Berkeley, CA 94707
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November 2022

Table of Contents

FIGURES AND TABLES

APPENDICES

1.0 EXECUTIVE SUMMARY

This biological resources evaluation was conducted by Vollmar Natural Lands Consulting, Inc. (VNLC) on behalf of Ardurra Group, Inc for the Vasona Pump Station Upgrade Project (project). Santa Clara Valley Water District (Valley Water) is the project proponent and owner/manager of the project site property. The anticipated project work will occur within and around the existing Vasona Pump Station (VPS), a pump building and associated infrastructure. The 'study area' covers six parcels owned by Valley Water (Assessor's Parcel Numbers [APNs] 424-440-30, 424-080-76, 424-32-032, 424-32-018, 424-32-065, and 424-450-59), which include and expand beyond the anticipated project construction footprint.

In the absence of avoidance and minimization measures (AMMs), the project could result in disturbance to the following sensitive biological resources, which are known and/or have potential to occur within the study area:

- Los Gatos Creek and associated riparian vegetation;
- Potentially jurisdictional waters within or adjacent to the artificial pond basin;
- Mature trees, including native coast live oaks and valley oaks (*Quercus lobata*);
- California red-legged frog (*Rana draytonii*, CRLF; Federally Threatened and California Department of Fish and Wildlife [CDFW] Species of Special Concern [SSC]);
- Cooper's Hawk (*Accipiter cooperii*; CDFW Watch List [WL])
- Yellow Warbler (*Setophaga petechia;* CDFW SSC);
- Riffle sculpin (*Cottus gulosus;* CDFW SSC);
- Southern coastal roach (*Hesperoleucus venustus subditus;* CDFW SSC);
- Monarch butterfly (*Danaus plexippus*; Federal Candidate);
- Townsend's big-eared bat (*Corynorhinus townsendii*; CDFW SSC and Western Bat Working Group [WBWG] high priority);
- Western red bat (*Lasiurus blossevillii*; CDFW SSC and WBWG high priority);
- Hoary bat (*Lasiurus cinereus*; WBWG medium priority);
- San Francisco dusky-footed woodrat (*Neotoma fuscipes annectens*; CDFW SSC);
- Southwestern pond turtle (*Actinemys pallida*; CDFW SSC); and
- Active nests of bird species protected by the Migratory Bird Treaty Act (MBTA) and California Fish and Game Code (CFGC).

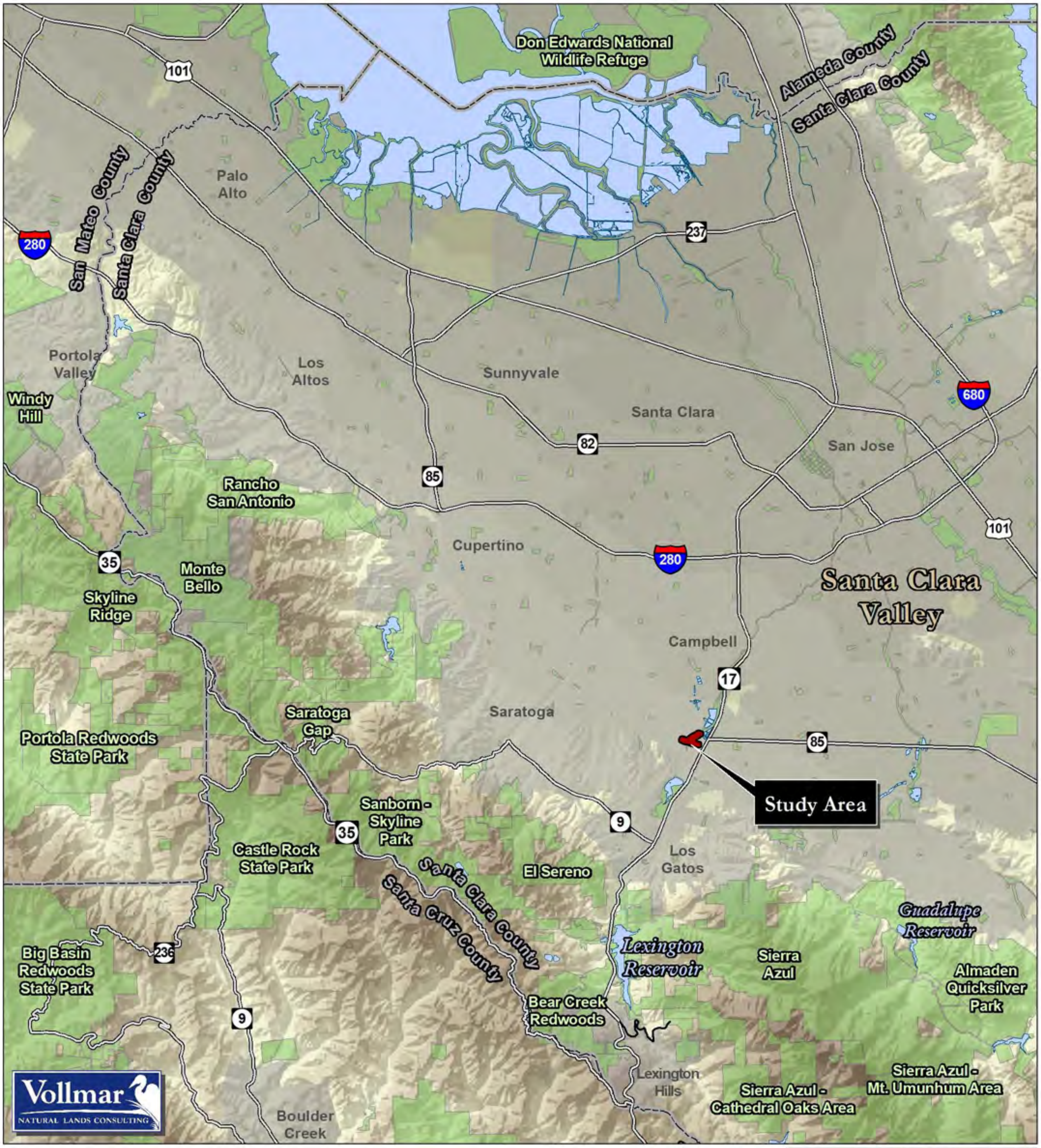
The implementation of applicable Valley Water Best Management Practices (BMPs; Santa Clara Valley Water District 2014 or most recent version), compliance with Santa Clara Valley Habitat Conservancy Plan requirements, and adoption of additional recommended AMMs would reduce potential impacts to potentially occurring sensitive biological resources.

2.0 INTRODUCTION

This report presents the methods and results of a biological resources evaluation conducted by Vollmar Natural Lands Consulting, Inc. (VNLC) for the Vasona Pump Station Upgrade Project (project). The report is prepared on behalf of Ardurra Group, Inc. and is prepared for the Santa Clara Valley Water District (Valley Water), the project proponent and owner/manager of the project site property. The primary work will be associated with the existing Vasona Pump Station (VPS), a pump building and associated infrastructure, which directs water throughout the Santa Clara Valley via three major pipelines. This project involves installation and replacement of pumps, controls, and other assets at the VPS to improve the reliability, safety, and flexibility of Valley Water's water delivery system. Project work is anticipated to occur within the developed footprint, which includes the existing pump building as well as areas immediately outside the building. The exact footprint of the work is subject to change and may include established staging areas on adjacent parcels. This area is considered the 'project site' within this report. The 'study area' covers six parcels (Assessor's Parcel Numbers [APNs] 424-440-30, 424-080-76, 424-32-032, 424-32-018, 424-32-065, and 424-450-59), which include the project site. The project site and study area are located in northern Los Gatos, in Santa Clara County (see **Figures 1** and **2**).

The study area encompasses the VPS, multiple graded staging areas, ornamental plantings, an artificial pond, and a portion of Los Gatos Creek. Vegetation consists of landscaped areas that intergrade with naturalized woodlands of coast live oak (*Quercus agrifolia*) and ornamental non-native tree species; riparian woodland; and ruderal (i.e., weedy) grassland vegetation.

This biological resources evaluation was conducted to identify and characterize existing conditions and assess the potential for sensitive biological resources to occur within the study area. Sensitive biological resources considered in this report include species listed under the federal Endangered Species Act (threatened, endangered, candidates, and proposed); birds protected by the Migratory Bird Treaty Act (MBTA) and Bald and Golden Eagle Protection Act; species listed under the California Endangered Species Act (threatened, endangered, candidate); species designated by the California Department of Fish and Wildlife (CDFW; Species of Special Concern [SSC], Fully Protected); bats listed by the Western Bat Working Group (WBWG) as medium or high priority; plants with a California Rare Plant Ranking (CRPR) of 1A, 1B, 2A, 2B, 3, or 4; plant communities designated by CDFW or California Native Plant Society (CNPS) as global or state rank ("G" or "S") 1-3; mature trees protected by the Town of Los Gatos; and potential state or federally regulated wetlands or waters.



Legend

- Highway
- Study Area Boundary
- Public or Preserved Land
- Water Body
- Urbanized Area
- County Boundary

Data Sources: USHUD, 2018 | CPAD, 2016
USGS, Various | GAP, 1998 | DWR, 2001
Santa Clara County, 2017
GIS/Cartography by: K. Chinn, Oct. 2021
Map File: 524_Vicinity_A-P_2021-1028.mxd

FIGURE 1
Regional Vicinity Map

Vasona Pump Station Upgrade Project
Los Gatos, Santa Clara County, California

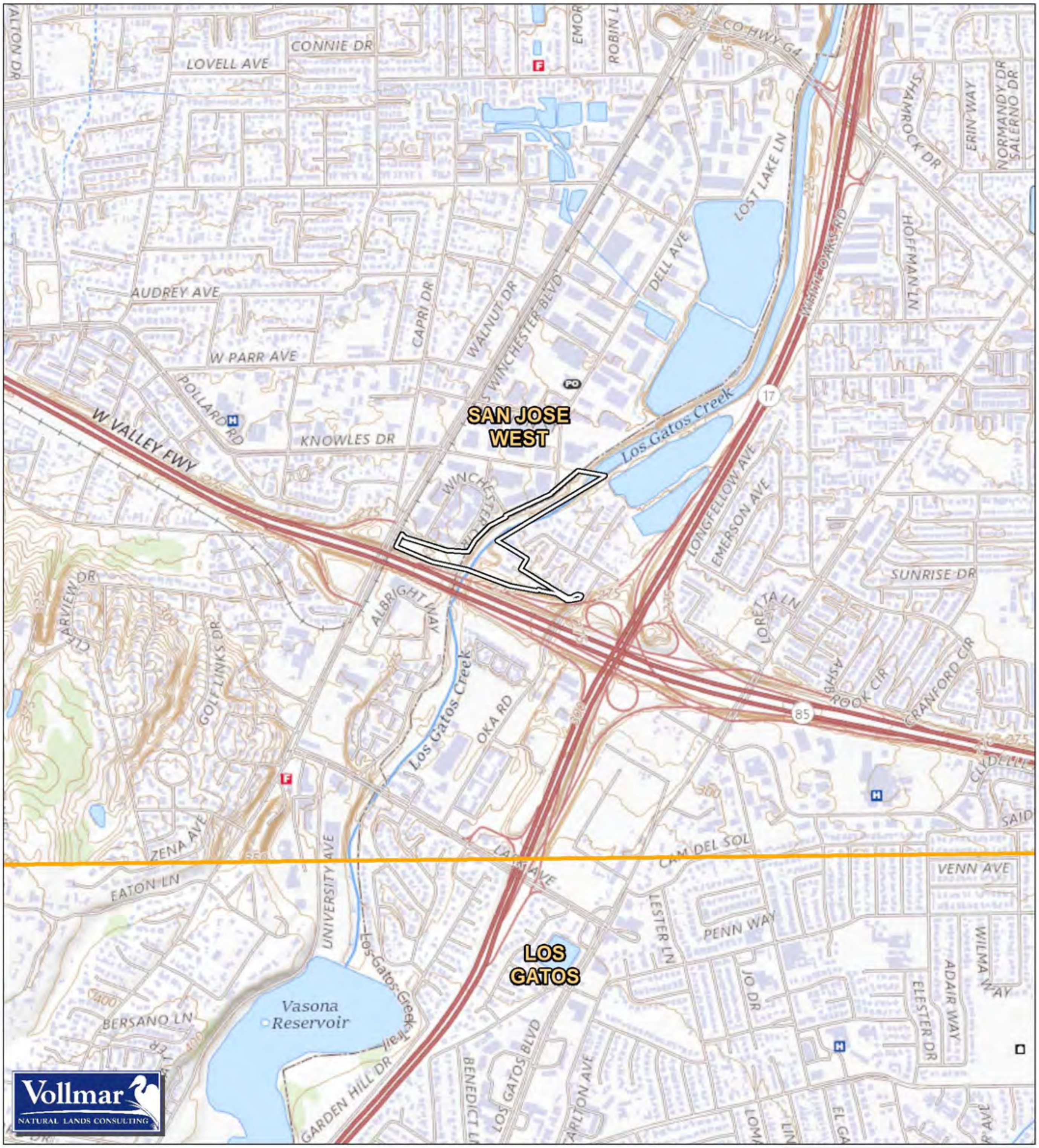
N
W E
S

1:200,000

0 2 4 Km

0 1 2 4 Mi

Docusign Envelope ID: 9C3436BD-3E77-42F6-B799-3CBA2C82367C



Legend

Study Area Boundary

Topographic Quadrangle Boundary

FIGURE 2
USGS Topographic Map

Vasona Pump Station Upgrade Project
Los Gatos, Santa Clara County, California

N
W E
S

1:18,000
(1 in. = 1,500 ft. at letter-sized layout)

0 250 500 1,000 Meters

0 750 1,500 3,000 Feet

Data Sources: GAP, 1998 | USGS DRG Map
USGS, Various | Santa Clara County, 2017
GIS/Cartography by: K. Chinn, Oct. 2021
Map File: 524_DRG_A-P_2021-1028.mxd

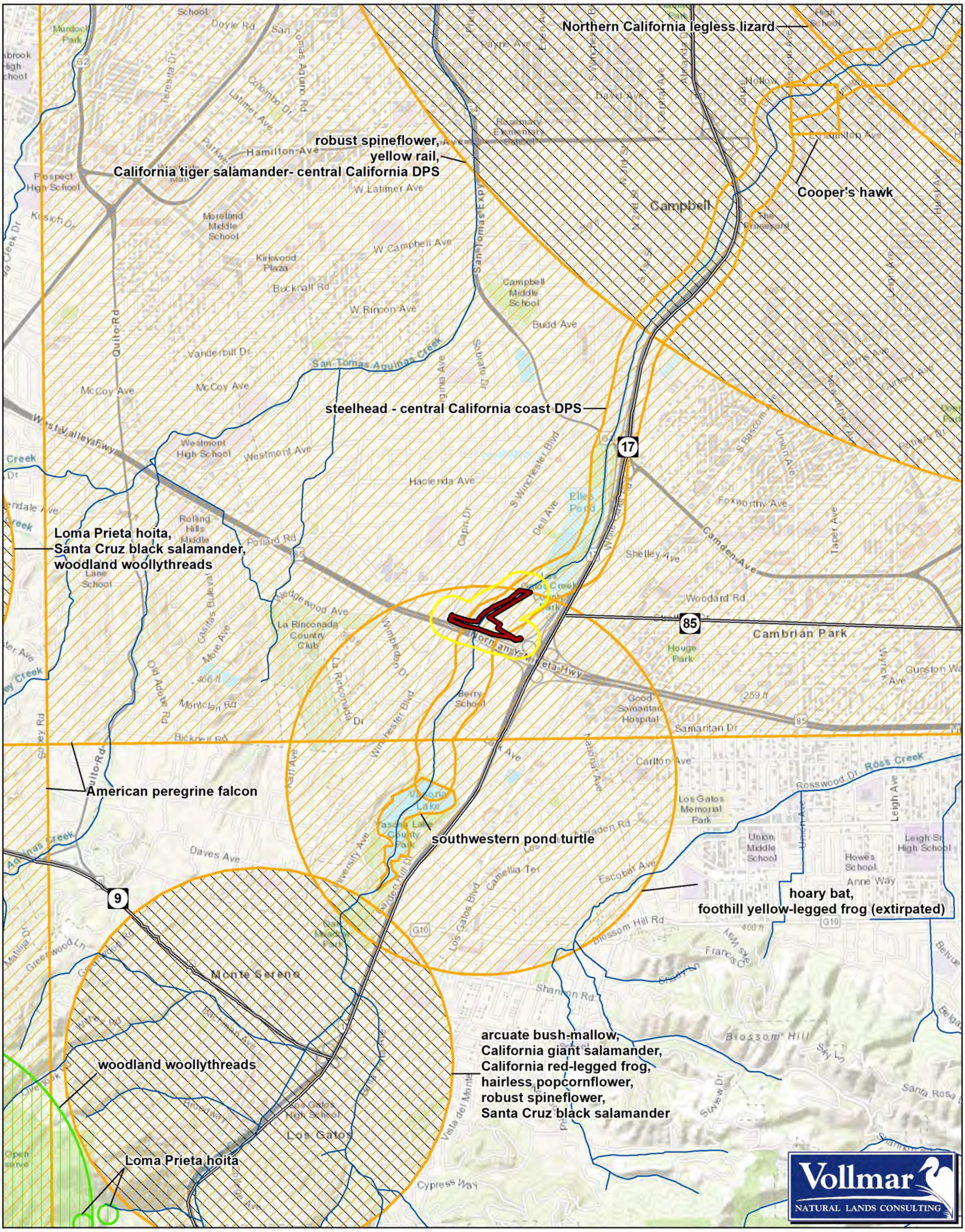
Sensitive biological resources known or with potential to occur within the study area are addressed listed below and further discussed in **Section 6**.

- Los Gatos Creek and associated riparian vegetation;
- Potentially jurisdictional waters within or adjacent to the artificial pond basin;
- Mature trees, including native coast live oaks and valley oaks (*Quercus lobata*);
- California red-legged frog (*Rana draytonii*, CRLF; Federally Threatened and CDFW SSC);
- Cooper's Hawk (*Accipiter cooperii*; CDFW Watch List [WL])
- Yellow Warbler (*Setophaga petechia;* CDFW SSC);
- Riffle sculpin (*Cottus gulosus;* CDFW SSC);
- Southern coastal roach (*Hesperoleucus venustus subditus;* CDFW SSC);
- Monarch butterfly (*Danaus plexippus*; Federal Candidate);
- Townsend's big-eared bat (*Corynorhinus townsendii*; CDFW SSC and WBWG high priority);
- Western red bat (*Lasiurus blossevillii*; CDFW SSC and WBWG high priority);
- Hoary bat (*Lasiurus cinereus*; WBWG medium priority);
- San Francisco dusky-footed woodrat (*Neotoma fuscipes annectens*; CDFW SSC);
- Southwestern pond turtle (*Actinemys pallida*; CDFW SSC); and
- Active nests of bird species protected by the MBTA and California Fish and Game Code (CFGC).

Additional species that are known from the vicinity but not expected within the study area are addressed in **Appendix B**. A formal wetland delineation would be required to determine the full extent of any potentially jurisdictional wetlands within the study area. Any jurisdictional wetlands (Waters of the U.S., other waters, or additional state-regulated wetlands) would be subject to Clean Water Act (CWA) compliance through the U.S. Army Corps of Engineers (ACOE) and/or Regional Water Quality Control Board (RWQCB). Los Gatos Creek, potential wetlands, and riparian vegetation would also generally be subject to CDFW regulation via Sections 1602-1603 of the CFGC. Specific species, including CRLF and southwestern pond turtle, are also covered by the Santa Clara Valley Habitat Conservation Plan and Natural Community Conservation Plan (HCP/NCCP) permit process (ICF International 2012). A separate arborist report and coordination with the Town of Los Gatos is recommended to provide details if any impacts are anticipated to individual trees documented within the study area.

3.0 EXTENT AND LOCATION OF THE STUDY AREA

This report refers to a 'project site' and 'study area'. The project site consists of the anticipated construction footprint, including potential staging areas, while the study area encompasses six adjacent parcels owned by Valley Water that contain the project site. The study area is approximately 13.25 acres and consists of two developed areas that may be accessed separately from Winchester Blvd and Fremont Court, as well as a portion of Los Gatos Creek. The study area occurs immediately northwest of the intersection of State Highways 85 and 17 and is within the town of Los Gatos. The study area encompasses six parcels (APNs 424-440-30, 424-080-76, 424-32-032, 424-32-018, 424-32-065, and 424-450-59) that consist of a water conveyance facility, material storage and staging areas, Los Gatos Creek, and a public walkway. The northernmost parcel that follows the creek and provides vehicle access is no longer included in project plans but was surveyed in order to ensure all related parcels were assessed. The project actions are planned to occur within two of the parcels (APNs 424-440-30 and 424-080-76) that house the pump station and associated infrastructure. As **Figure 2** shows, the study area occurs within the San Jose West 7.5' United States Geological Survey (USGS) topographic quadrangle, within the Rinconada de los Gatos land grant (no township, range, or section designations). All of the parcels, excluding the creek parcel (424-32-065) and the parcel covering the eastern entrance (424-450-59), are surrounded by chain link fencing and include a locked gate at the entrance from Fremont Court and Winchester Blvd. The property may only be accessed with the permission and assistance of staff from Valley Water. An additional buffer of 500 feet around the study area (shown in **Figure 3**) was included in the regional analysis and site visit to assess the immediate vicinity for sensitive biological resources that might impact the study area.



Legend

- Stream
- Highway
- Study Area Boundary
- 500-foot Buffer of Study Area
- CNDDB Plant Occurrence
- CNDDB Animal Occurrence
- CNDDB Animal and Plant Occurrence

The entire map frame is located in West Coast Salmon Essential Fish Habitat.

FIGURE 3
Regional Biological Resources

Vasona Pump Station Upgrade Project
Los Gatos, Santa Clara County, California

N
W E
S

1:31,680
(1 in. = 0.5 mile at tabloid layout)

0 0.25 0.5 1 Km

0 0.25 0.5 1 Mi

Data Sources: Santa Clara County, 2017 | TIGER, 2010
CDFW CNDDB, 01/2022 | NOAA/USFWS, 2018
ESRI/DigitalGlobe, 2019 (air photo) | GAP, 1998
GIS/Cartography by R. Foss, K. Chinn, Mar. 2022
Map File: 524_CNDDB_B-P_2022-1107.mxd

4.0 METHODS

4.1 Preliminary Review

Prior to conducting field surveys, project ecologists compiled and reviewed existing information pertaining to the study area. Specifically, the ecologists compiled and reviewed the latest version of the CNDDB (CDFW 2021b), the CNPS Inventory of Rare Plants (CNPS 2021b), and a U.S. Fish and Wildlife Service (USFWS) Information Planning and Consultation System (IPaC) list (USFWS 2021). The IPaC search is presented in **Appendix C**. A map of CNDDB occurrence locations (**Figure 3**) was prepared in order to analyze the proximity and habitat conditions of special-status species and critical habitat with respect to the study area location and habitat types. Site aerial imagery, geology and soil maps, project description, and general regional conditions were also reviewed prior to the site survey.

4.2 Targeted Sensitive Biological Resources

Special-status animal species targeted and analyzed in this report include those listed by the USFWS and/or CDFW as threatened or endangered, as well as those proposed for listing or that are candidates for listing as threatened or endangered. The listing of "Endangered, Rare, or Threatened" is defined in Section 15380 of the *California Environmental Quality Act* (*CEQA*) *Guidelines*. Section 15380(b) states that a species of animal or plant is "endangered" when its survival and reproduction in the wild are in immediate jeopardy from one or more causes, including loss of habitat, change in habitat, overexploitation, predation, competition, disease, or other factors. A species is "rare" when either "(A) although not presently threatened with extinction, the species is existing in such small numbers throughout all or a significant portion of its range that it may become endangered if its environment worsens; or (B) the species is likely to become endangered within the foreseeable future throughout all or a portion of its range and may be considered 'threatened' as that term is used in the Federal Endangered Species Act" (ESA).

Animal species are designated as "Species of Special Concern" or "Fully Protected" by the CDFW. CDFW recommends their protection as their populations are generally declining and they could be listed as threatened or endangered (under CESA) in the future. "Fully Protected" species have legal protection under CFGC and generally may not be taken or possessed at any time. The CDFW may only authorize take for necessary scientific research and may authorize live capture and relocation of "fully protected" species under specific circumstances.

Special-status plants include species, sub-species, and varieties that are designated rare, threatened, or endangered as well as candidate species for listing by the USFWS. Special-status plants also include those that are considered rare or endangered under the conditions of Section 15380 of the CEQA Guidelines, such as plant species identified by the CNPS as CRPR 1A, 1B, and 2 in the Inventory of Rare and Endangered Vascular Plants of California by the CNPS. Finally, special-status plants may include other species that are considered sensitive or of special concern due to limited distribution or lack of adequate information to permit listing or rejection for state or federal status, such as those included as CRPR List 3 or List 4 in the CNPS Inventory.

For the purposes of this project analysis, 'sensitive plant communities' include those designated as such by state and local governmental agencies. Sensitive plant communities are designated by the CDFW, either in the CNDDB, the list of California Sensitive Natural Communities (CDFW 2021a), or as sensitive alliances classified in the Manual of California Vegetation (MCV) (Sawyer et al. 2009, CNPS 2021a). Alliances included within the MCV that are designated as G or S 1-3 are considered "rare or threatened" at the global and/or state level, and are therefore considered sensitive. A formal plant community classification and mapping effort would improve the vegetation assessment conducted for this report.

In addition, wetland and riparian habitats, regardless of MCV status, are considered sensitive. Wetlands, streams, and permanent and intermittent drainages are subject to the jurisdiction of the ACOE under Section 404 of the CWA and RWQCB under Section 401. The RWQCB may also have jurisdiction over additional wetlands and other surface waters. Wetland regulations are the subject of dynamic change based on transitions between federal administrations. The RWQCB will provide most up to date guidance for required project permitting. The CDFW also generally has jurisdiction over these resources, together with other aquatic features that provide an existing fish and wildlife resource pursuant to Sections 1602-1603 of the CFGC. The CDFW asserts jurisdiction to either the outer edge of vegetation associated with a riparian corridor or top of bank if riparian vegetation is absent; whichever is greater. Any grading, excavation, or filling of jurisdictional drainage corridors or wetlands would require permit coordination with associated agencies.

Valley Water is a permittee under the HCP/NCCP, which describes conditions on covered activities and establishes a permit application process through the Santa Clara Valley Habitat Agency. Valley Water has identified that project activities should be considered covered by the HCP/NCCP and the associated permit process. Participation in the application process provides comprehensive avoidance and minimization measures for covered activities to help ensure that potential impacts to specific species are reduced.

The Town of Los Gatos has a Tree Protection Ordinance for specific classes of trees, such as all trees with diameters greater than 4 inches at breast height. Protected trees are defined under various circumstances within the town limits (Chapter 29, Article I, Division 2, Town of Los Gatos n.d.). Because the study area is within an incorporated area of Santa Clara County, county-level tree protection measures do not apply to the project. Detailed information pertaining to tree impacts and associated minimization and protection measures may be provided in a separate arborist report.

4.3 Field Survey

A habitat assessment survey was conducted within the study area on October 28, 2021. An additional buffer of 500 feet was surveyed from public roads, walkways, and access points to provide context for the habitat within the study area. The survey was conducted by VNLC Senior Ecologist Roxanne Foss. During the survey, the ecologist traversed the entire study area on foot and recorded dominant plant species and common animal species, along with general ecological conditions and notable habitat features. The habitat conditions were assessed for potential to support special-status plants and animals. This included a search for habitat elements such as mammal burrow complexes, nesting potential for birds, sheltering habitat for special-status amphibians and reptiles, and potential wetlands. Photographs detailing representative study area conditions and habitats were also collected from across the study area (**Appendix A**).

5.0 EXISTING SITE CONDITIONS

5.1 Overview

The study area is surrounded by residential and commercial development, a heavily trafficked freeway system, and Los Gatos Creek. The suburban area occurs within the floodplain northeast of the Santa Cruz Mountains and south of the southern extent of the San Francisco Bay. Elevation within the study area ranges from 74 feet (at the northern edge of creek section) to 84 feet (in uplands to the east and west) above sea level (USGS 1997). The VSP is situated on the eastern upland plain above Los Gatos Creek, which features berms along its banks. A separate levelled storage area occurs west of the creek and a multi-use pathway. The topography in the upland areas is generally flat to the berm edges, then more steeply descends to the narrow floodplain of Los Gatos Creek. Topography in the area is highly altered, resulting in higher elevation, flat terraces largely separated from the restricted creek floodplain. The vegetation immediately surrounding the VSP developed footprint is landscaped. Native and naturalized trees intergrade along the margins of the development and into the riparian area, which also features native and non-native vegetation in each of the vegetative strata. The area surrounding the study area is planted or otherwise highly altered by the influence of development, imported soils and engineered topography.

5.2 Land Use

The property encompassing the project site is owned by Valley Water. The majority of the planned work will occur within developed portions of two parcels (424-440-30 and 424-080-76) that include the VPS building and associated buildings and infrastructure. Additional parcels that may be utilized by the project are also owned by Valley Water: one parcel consisting of a graded access road along the Los Gatos Creek (424-32-065), two graded parcels to the west of the creek that are used for material storage (424-320-32 and 424-320-18), and one parcel providing access to the VPS (424-450-59). The parcels include developed graded areas as well as natural and/or ornamental vegetation.

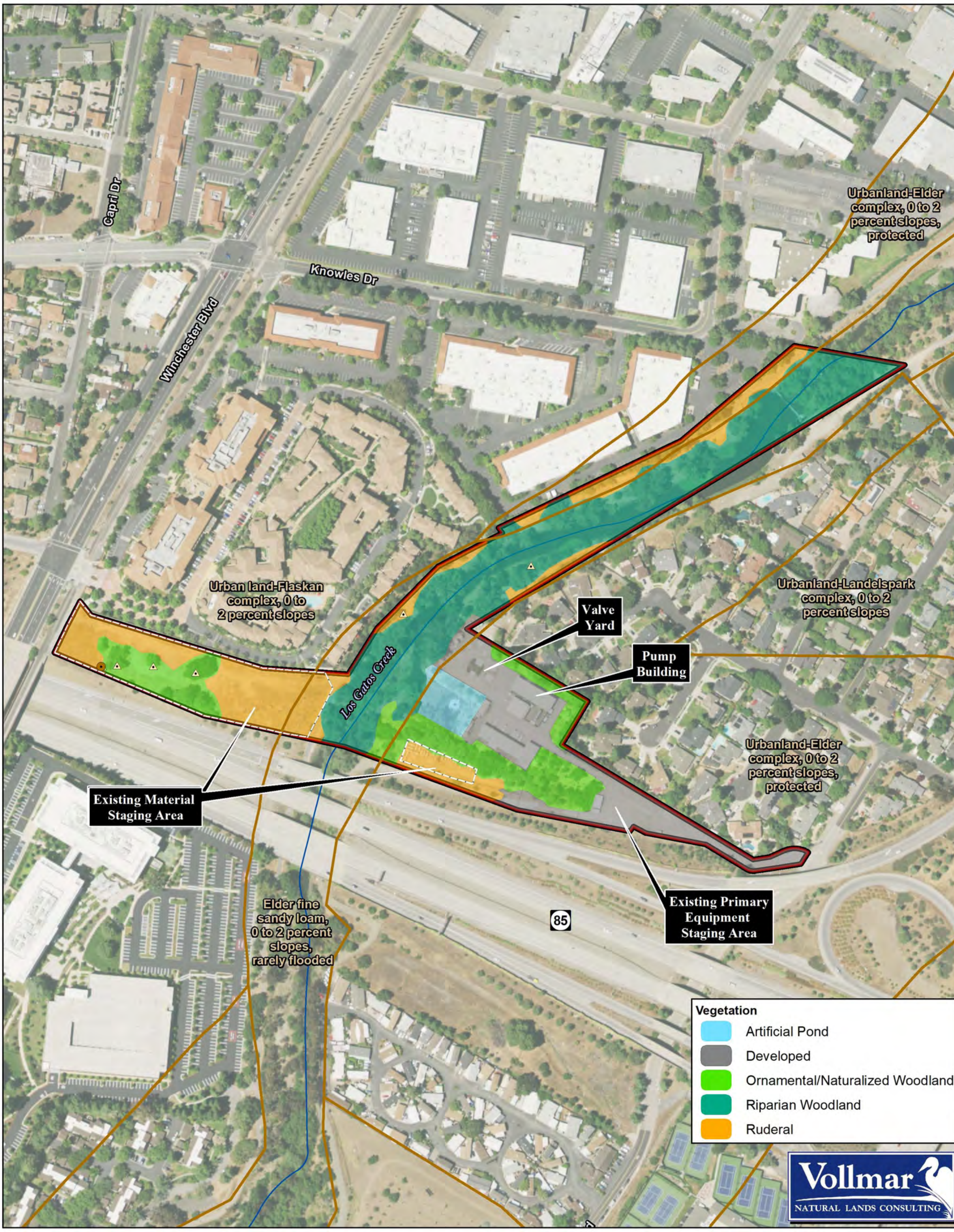
Broadly, the study area is surrounded by dense suburban residential housing, highways, retail and corporate offices. State Highway 85 occurs immediately south and State Highway 17 occurs to the west, and their intersection forms the southeast boundary of the study area. Los Gatos Creek and a multi-use recreational trail are immediately west of the project site and bisect Valley Water property. Habitats in the area include riparian woodland, an artificial pond, ruderal grassland, and ornamental/naturalized woodland (**Figure 4**).

5.3 Hydrology

The study area falls within the Los Gatos Creek watershed (Hydrologic Unit Cataloging 12; USGS 2013). This watershed is a part of the Frontal San Francisco Bay Estuaries Watershed, as all water in the area ultimately flows north toward San Francisco Bay. Los Gatos Creek flows perennially north-northeast through the study area (see **Figure 3**). Upstream of the study area, Los Gatos Creek headwaters are in the Santa Cruz Mountains, and the creek flows through multiple impoundments, including the Vasona and Lexington Reservoirs. At a local level, water flowing off of the study area likely ends up either within a storm drain system, or directly flows into Los Gatos Creek and eventually to the San Francisco Bay. The bubbler and artificial water impoundments within the study area are part of the VPS process. These artificial impoundments may be hydrologically connected to the Los Gatos Creek during high flow events.

5.4 Climate

The climate in the region is characterized as “Mediterranean,” with cool, wet winters and warm, dry summers as well as high inter- and intra-annual variability in precipitation. However, the study area is less than three miles east of the boundary of the ACOE’s “Western Mountains, Valleys, and Coast Region,” which encompasses the Santa Cruz Mountains and coastal zone, which receives more precipitation and generally features colder winter temperatures than the Arid West region (USACOE 2006). The crest of the Santa Cruz Mountains, located less than ten air miles west of the study area, greatly attenuates the maritime influences of the Pacific Ocean on the study area and surrounding vicinity. The reduced maritime climate is responsible for lower precipitation levels and greater differences in winter versus summer temperatures at the study area relative to the coastal region on the other side of the mountains. According to the Parameter-elevation Regression on Independent Slopes Model (PRISM) climate data model (2021), mean annual precipitation and temperature at the study area from the timeframe of 1981 to 2010 are 19.3 inches and 59.8 degrees Fahrenheit (F), respectively. Over 98 percent of precipitation in the study area occurs during the “wet season,” which extends from October through May. The wettest month of the year is February, which experiences an average of 4.1 inches of precipitation, while the driest month is July, which experiences only 0.02 inch. The coldest month is December, with a mean temperature of 49.4°F, and the warmest months are July and August, with a mean of 69.5°F.



Legend

- Burrow
- Woodrat nest
- Stream
- Soil Unit Boundary
- Study Area Boundary
- Staging Area

FIGURE 4
Local Site Map

Vasona Pump Station Upgrade Project
Los Gatos, Santa Clara County, California

N W E S

1:3,000

0 50 100 200 Meters

0 125 250 500 Feet

Data Sources: Santa Clara County, 2017 | USDA, 2016
USDA NAIP, 2020 | GAP, 1998 | USGS, various
VNLC, 2021
GIS/Cartography by R. Foss, K. Chinn, Nov. 2021
Map File: 524_Site_B-P_2022-0318.mxd

The study area experienced lower than average rainfall and warmer than average temperatures during the 2020-2021 wet season (leading up to the timeframe of site survey and assessment). Precipitation from October through May was only 7.7 inches, which is only 40.5 percent of normal (18.95 in.) (ibid). The average temperature during the same timeframe was 56.1°F, which is 101 percent of normal (55.5°F).

5.5 Soils

Approximately half (46%) of the study area consists of Elder fine sandy loam, rarely flooded (soil unit 171). This soil type characterizes the relatively natural area along Los Gatos Creek. The remaining area is split between Urban land-Elder complex (58%, soil unit 169) to the east of the creek, and Urban land-Flaskan complex (16%, soil unit 140) to the west of the creek (**Figure 4**). The range of slopes for all soils is 0 to 2 percent (USDA-NRCS 2021). The two upland soil types have been dramatically altered by development, ground disturbance and importation of soil. In the upland areas, the underlying soil and imported soils provide the foundation for constructed platforms, road ways, berms, and other earthen infrastructure.

The Elder fine sandy loam soil type characterizes streams and consists of alluvium derived from a variety of rock types including metamorphic, sedimentary, and metavolcanic. The soil unit is considered somewhat excessively drained with a very low runoff class. The Urban land-Elder soil type consists of 70% urban, 20% protected Elder soil, and 10% other minor components. The Urban land- Flaskan complex consists of the same division amongst components: 70% urban, 20% Flaskan, and 10% other components. The Flaskan component occurs on alluvial fans and derives from alluvium from the same rock types as the Elder soil. However, the Flaskan soil component typically consists of sandy loam and sandy clay loam near the surface while the Elder soil is fine sandy loam throughout, excluding an inch of surface plant material. The Flaskan soil is well drained with low runoff potential. The Urban land of both blended soil units generally characterizes developed alluvial fans derived from disturbed and human transported material.

5.6 Botanical Resources

Botanical resources within the study area included both natural plant communities and ornamental plantings, blending together along and within their boundaries. Plant communities in the study area included riparian woodland, artificial pond, ornamental/naturalized woodland, and ruderal grassland. All plant communities were degraded by high levels of human impact and invasive species. Although none of the plant communities in the study area are designated as sensitive (see **Table 1**), the riparian woodland and any potential wetlands are protected by CFGC and/or CWA protections described under **Section 6.6**.

Table 1. Plant Community Crosswalk and Status

Plant Community	Closest CNPS Association/Alliance	SCVHCP/NCCP Vegetation Type*	Status**
Riparian woodland	Degraded *Salix gooddingii - Salix laevigata* Forest & Woodland Alliance (Goodding's willow - red willow riparian woodland and forest)	Mixed Riparian woodland	GNA/SNA; generally protected by CDFW via CFGC Sections 1602-1603; mature trees protected by Town of Los Gatos
Artificial pond	Degraded *Salix gooddingii - Salix laevigata* Forest & Woodland Alliance (Goodding's willow - red willow riparian woodland and forest)	Portions may be mapped as Mixed Riparian Woodland and Seasonal Wetlands	GNA/SNA; Riparian vegetation generally protected by CDFW via CFGC Sections 1602-1603; mature trees protected by Town of Los Gatos; potential seasonal wetland protected by CWA
Ornamental/ naturalized woodland	None	Ornamental woodlands	N/A; mature trees protected by Town of Los Gatos;
Ruderal grassland	Degraded *Avena spp. - Bromus spp.* Herbaceous Semi-Natural Alliance (Wild oats and annual brome grasslands)	(Degraded) California annual grassland	GNA/SNA

* ICF International 2012; ** GNA=global status not applicable; SNA subnational status not applicable (CNPS 2021a)

The riparian woodland overstory consists of native tree species: red willow (*Salix laevigata*), California buckeye (*Aesculus californica*), Fremont cottonwood (*Populus fremontii*), valley oak, and coast live oak, as well as non-native species: silver wattle (*Acacia dealbata*), red gum (*Eucalyptus camaldulensis*), and plum (*Prunus* sp.). Some of the woody and vine strata in the riparian community include non-native Canary ivy (*Hedera canariensis*), ornamental rose (*Rosa* sp.), and cotoneaster (*Cotoneaster* sp.), as well as native narrow leaved willow (*Salix exigua*), poison oak (*Toxicodendron diversilobum*), mule fat (*Baccharis salicifolia*), and blue elderberry (*Sambucus nigra* ssp. *caerulea*). The creek channel supports narrow leaf cattail (*Typha angustifolia*), broadleaf cattail (*T. latifolia*), six petal water primrose (*Ludwigia hexapetala*), and knotweed (*Persicaria* sp.). The visible channel bottom consists of built-up organic material, silt, and gravel.

The artificial pond and adjacent uplands were fenced and locked during the field assessment. Basic assessments were made from behind the fence and beyond top of bank. The suite of species observed was similar to those observed in the riparian area. Tree species observed included native coast live oak and red willow, as well as non-native Peruvian pepper tree (*Schinus molle*), European olive (*Olea europaea*), acacias (*Acacia* sp.), and gum trees (*Eucalyptus* sp.) along the upper surrounding banks. The lower elevation area included native coyote brush (*Baccharis pilularis*), as well as non-native fennel (*Foeniculum vulgare*), mustards (*Brassica* sp.), and French broom (*Genista monspessulana*). Access to the area would improve plant and wetland feature identification.

The ornamental/naturalized woodlands include many of the species observed in other habitats, particularly coast live oak, but within an upland setting. The woodland located on the west side of the study area includes coast live oak, Peruvian pepper tree, ornamental pine (*Pinus* sp.) and Deodar cedar (*Cedrus deodara*). The overstory of the landscaped area in the immediate vicinity of the project included many native coast live oak trees, planted coast redwood (*Sequoia sempervirens*), and numerous ornamental trees, such as Callery pear (*Pyrus calleryana*), strawberry tree (*Arbutus unedo*), glossy privet (*Ligustrum lucidum*), European olive, and oleander (*Nerium oleander*). Understory species in the project site included the planted native common rush (*Juncus patens*) as well as non-native iceplant (*Carpobrotus edulis*), lantana (*Lantana camara*), and ornamental rose. In areas where the managed landscaping transitioned to natural areas, additional coast live oak, acacia, and gum trees were common.

Most of the non-native trees are listed by the California Invasive Plant Council (Cal-IPC) and have the potential to become invasive. The ruderal grassland and understory of all the plant communities, with the exception of managed landscaping, primarily consisted of exotic herbaceous plant species such as brome fescue (*Festuca bromoides*), ripgut brome (*Bromus diandrus*), and stinkwort (*Dittrichia graveolens*). The staging areas on both sides of the creek supported scattered coyote brush within the ruderal grassland plant community. Understory species were absent in developed areas, in managed landscape areas, and along the multiuse trail.

Representative photographs of vegetation cover and habitat conditions throughout the study area are included in **Appendix A**. **Table B-2** in **Appendix B** presents a list of all special-status plants documented in the vicinity of the study area. The table includes a column that indicates the potential for each taxon to occur within the study area, based on habitat preferences and existing conditions on the site.

6.0 SENSITIVE RESOURCES

This section provides background information and lists recommended AMMs to reduce the potential for the project to impact special-status species and sensitive biological resources within the study area. **Figure 3** shows the distribution of special-status animal and plant species that are documented in the vicinity of the study area. These and other special-status species known from the project region are listed in **Appendix B**, along with their regulatory status, habitat requirements, and an evaluation of their potential to occur in the study area. Sensitive biological resources with potential to occur within the study area are addressed in this section.

The following sensitive biological resources are known and/or have potential to occur within the study area:

- Los Gatos Creek and associated riparian vegetation;
- Potentially jurisdictional waters within or adjacent to the artificial pond basin;
- Mature trees, including native coast live oaks and valley oaks (*Quercus lobata*);
- California red-legged frog (*Rana draytonii*, CRLF; Federally Threatened and CDFW SSC);
- Cooper's Hawk (*Accipiter cooperii*; CDFW Watch List [WL])
- Yellow Warbler (*Setophaga petechia;* CDFW SSC);
- Riffle sculpin (*Cottus gulosus;* CDFW SSC);
- Southern coastal roach (*Hesperoleucus venustus subditus;* CDFW SSC);
- Monarch butterfly (*Danaus plexippus*; Federal Candidate);
- Townsend's big-eared bat (*Corynorhinus townsendii*; CDFW SSC and WBWG high priority);
- Western red bat (*Lasiurus blossevillii*; CDFW SSC and WBWG high priority);
- Hoary bat (*Lasiurus cinereus*; WBWG medium priority);
- San Francisco dusky-footed woodrat (*Neotoma fuscipes annectens*; CDFW SSC);
- Southwestern pond turtle (*Actinemys pallida*; CDFW SSC); and
- Active nests of bird species protected by the MBTA and California Fish and Game Code (CFGC).

Recommended Avoidance and Minimization Measure

Measure 1. All construction personnel involved in the project shall attend environmental awareness training prior to the commencement of potential project disturbance activities. The training shall be conducted by a qualified biologist and shall involve the presentation of sensitive biological resources documented or potentially occurring in the study area. The training shall include paper handouts that describe each resource with respect to listing status, habitat preferences, distinguishing physical characteristics, causes of its decline, and all associated AMMs. Handouts shall include photographs of the resources in order to facilitate identification by the personnel.

6.1 Listed Species

Life history and habitat information for sensitive biological resources and species with potential to occur is provided below, along with recommended AMMs to protect the resources.

6.1.1 Designated Critical Habitat

As shown on **Figure 3**, the study area is not located within any designated critical habitat for endangered species.

6.1.2 California Red-legged Frog

California red-legged frog is listed as federally threatened and is a CDFW Species of Special Concern. The species occurs from sea level to elevations of approximately 5,200 feet (1,500 meters). Breeding occurs in streams, deep pools, backwaters within streams and creeks, ponds, marshes, sag ponds, dune ponds, lagoons, and stock ponds. Breeding adults are often associated with deep (greater than 2 feet [0.7 meter]) still or slow-moving water and dense, shrubby riparian or emergent vegetation (Hayes and Jennings 1988), but frogs have been observed in shallow sections of streams and ponds that are devoid of vegetative cover. The species is known to rest and feed within riparian vegetation and it is believed that the moisture and cover of the riparian zone provides foraging habitat and facilitates dispersal. The species has also been documented dispersing through areas with sparse vegetative cover and dispersal patterns are considered to be dependent on habitat availability and environmental conditions (Scott and Rathbun 1998).

CRLF critical habitat occurs 14 miles both to the east and west of the study area. Los Gatos Creek provides the most likely mode of dispersal for a CRLF individual to the study area. However, the most proximal CNDDB CRLF occurrences are historical and likely extirpated (CDFW 2021b). Suitable habitat upstream along Los Gatos Creek and in the watershed are separated from the study area by impoundments and the creek runs through highly developed areas. Transient CRLF individuals have a low potential to disperse from Los Gatos Creek and incidentally move across the more developed or naturalized portions of the site.

In the unlikely event that CRLF are present on the site at the time of project-related disturbances, project activities could cause injury or mortality of individual frogs. CRLF could also become trapped in erosion control material or open excavations.

CRLF is a covered species under the HCP/NCCP through the associated HCP/NCCP permitting process for covered activities. Projects covered under the regional general permit are subject to specific project conditions and requirements.

To avoid or minimize impacts on individual CRLF, the following AMMs are recommended.

Recommended Avoidance and Minimization Measures

Measure 2. Comply with all permitting requirements and project conditions per HCP/NCCP permit process.

Measure 3. In the event that a CRLF individual were identified within the project site during construction activities, Valley Water staff have indicated they will voluntarily send a pre-approved qualified biologist to move the individual to the closest suitable habitat outside of the project impact area per existing pre-approval from USFWS and CDFW.

6.1.3 Monarch Butterfly

Monarch butterfly is a Federal Candidate Endangered species. Adult monarch butterflies feature bright orange wings with black margins and venation. A double row of white spots runs parallel to the black border on the upside of the wing. Monarchs breed on obligate milkweed host plants (*Asclepias* sp.). Larvae feed exclusively on milkweed enter pupation between 9 and 18 days old. Adult monarchs emerge after 6 to 14 days. Most adult butterflies live two to five weeks, while overwintering adults may live six to nine months. Overwintering adult monarchs migrate over 2,000 miles to overwintering sites, a journey lasting over two months. The cohort of overwintering adults breeds at the overwintering sites in early spring (February-March) and undertakes a return migration to the summer breeding grounds (USFWS 2020).

Overwintering habitat is characterized by a set of microclimatic conditions including dappled sunlight, high humidity, fresh water and an absence of freezing temperatures or high winds. Preferred trees include blue gum (*Eucalyptus globulus*), Monterey pine (*Pinus radiata*), and Monterey cypress (*Cupressus macrocarpa*) (Xerxes 2016).

The western monarch population is estimated to have declined precipitously to 97% below historical abundance between the 1980s and the mid-2010s (Pelton et. al 2019). The current overwintering population of approximately 30,000 individuals may be susceptible to probable extinction due to stochastic events. Major causes of decline include loss of quality breeding and foraging habitat, insecticide application, and changes in habitat availability due to climate change (USFWS 2020).

Roosting adult individuals may be disturbed by project-related activities. Construction activities or any associated host plant removal may also impact potential egg, larval or metamorphosing individuals if the host plant occurs in or adjacent to the project site.

To avoid or minimize impacts on individual monarch butterflies, the following AMM is recommended.

Recommended Avoidance and Minimization Measure

Measure 4. If project actions require vegetation removal, a qualified biologist will conduct a pre-construction survey for any breeding, larval, metamorphosing, or roosting individuals within one week of the commencement of tree removal activities. If there is a two week or longer lapse in construction activities within the Study Area, the pre-construction survey will be repeated.

If breeding is observed on milkweed plants, the biologist may establish a buffer zone until the butterfly emerges or 20 days have passed, exceeding the expected duration in the chrysalis.

If roosting butterflies are detected, then a no-disturbance buffer zone should be created around the site for the duration of the overwintering season, or until a qualified biologist determines that the butterflies are no longer present. The size of the buffer zone and types of construction activities restricted within it should be determined through coordination with the CDFW and the Xerxes Society.

6.1.4 Listed Plants

Table B-2 in **Appendix B** provides listed plant taxa known from the vicinity of the study area, as compiled from a CNPS 4-quadrangle search. The plant communities found in the study area are highly altered, generally disturbed, and dominated or co-dominated by exotic plants, including many invasive weed species. The listed plant species known from the region are unlikely to occur in the plant communities within the study area. Additionally, the soils consist largely of artificial fill soils and habitats.

6.2 Non-listed Special-Status Animal Species

Nine non-listed special-status species are documented from the vicinity of the study area, and have some potential to be impacted by project-related activities. These species are: Cooper's Hawk, Yellow Warbler, riffle sculpin, southern coastal roach, Townsend's big-eared bat, western red bat, hoary bat, San Francisco dusky-footed woodrat and southwestern pond turtle. Designation of these species by CDFW or WBWG warrants consideration, and AMMs are recommended.

6.2.1 Cooper's Hawk

Cooper's Hawk is on the CDFW Watch List. In the past 50 years, Cooper's Hawks' breeding numbers have decreased due to the degradation and destruction of their nesting habitat, in addition to bioaccumulation of pesticides (Polite 1988). This species tends to nest in dense stands of pines, oaks, Douglas-firs, and other large trees, often next to streams, rivers, creeks, or other riparian habitat. They are also commonly found in wooded suburban areas (including parks, quiet neighborhoods, fields, and busy streets with sufficient tree cover). Cooper's Hawks often prefer more patchy stands of trees for perching (Polite 1988).

While foraging Cooper's Hawk would be able to avoid active project-related construction areas, nesting Cooper's Hawk would be subject to any project-related disturbance beyond regular Valley Water operation-level activities. In particular, coast live oaks or other large trees in the study area provide suitable nesting habitat. To avoid or minimize impacts on individual nesting Cooper's Hawk, the following AMM is recommended.

Recommended Avoidance and Minimization Measure

See Measure 8, under Migratory and Nesting Birds (**Section 6.3**).

6.2.2 Yellow Warbler

Yellow Warbler is a CDFW Species of Special Concern. This species breeds in thickets or heavy brush in riparian woodlands from coastal and desert lowlands up to 8,000 feet in the Sierra Nevada, as well as in montane chaparral and open ponderosa pine and mixed conifer habitats (Green 1988, Gaines 1977). Yellow Warbler can be found in woodland, forest, and shrub habitats during migration (Green 1988). In recent decades, Yellow Warbler populations have seen a drastic decline, mainly as a result of brood parasitism by Brown-headed Cowbirds (Bent 1953, Garrett and Dunn 1981, Remsen 1978).

Potential foraging activities within the study area may be displaced during active project construction periods. Although potential nesting habitat within the study area is marginal for this species, any nesting Yellow Warbler in the vicinity of the project area could be disturbed by project activities. To avoid or minimize impacts on individual nesting Yellow Warbler, the following AMM is recommended.

Recommended Avoidance and Minimization Measure

See Measure 8, under Migratory and Nesting Birds (**Section 6.3**).

6.2.3 Riffle Sculpin

Riffle sculpin is a CDFW Species of Special Concern. This species is found exclusively in permanent, cold, headwater streams with riffles and rocky substrates (Moyle 2002, Leidy 2007). Riffle sculpins live in areas sheltered from strong currents, such as under rocks or logs. They also live in small pools with areas of cover. Riffle sculpins spawn under rocks in swift riffles or inside cavities in submerged logs (Moyle et al. 2015). This species is found in many watersheds in the Central Valley at mid-elevation reaches and below dams with coldwater releases (Moyle 2002). In the San Francisco Bay Area, they are found in Coyote Creek, the Guadalupe River, the Napa River, Sonoma Creek, Corte Madera Creek, and Green Valley Creek (Leidy 2007, Leidy et al. 2011).

No direct impacts to any potential riffle sculpin individuals are expected as this project avoids any in-stream work. Indirect impacts from project-related activities may include impacts to water quality, particularly temperature and substrate condition. To avoid or minimize impacts on any potential riffle sculpin, the following AMMs are recommended.

Recommended Avoidance and Minimization Measures

See Measures 10 through 15, under Potential Wetlands (**Section 6.6**).

6.2.4 Southern Coastal Roach

Southern coastal roach is a CDFW Species of Special Concern. Southern coastal roach is one of two subspecies of the coastal roach (*Hesperoleucus venustus*), as recognized in Baumsteiger and Moyle (2019). Southern coastal roach are found in small streams and intermittent watercourses, and sometimes in isolated pools (Fry 1936, Moyle et al. 1982, Leidy 2007), in the lower reaches of some San Francisco Bay streams and rivers. This species occupies suitable habitats from headwaters to the mouth of tributary streams to the San Francisco Bay, but are intolerant of saline waters (Moyle 2002).

As with riffle sculpin, no direct impacts to any potential southern coastal roach individuals are expected as this project avoids any in-stream work. Indirect impacts from project-related activities may include impacts to water quality. To avoid or minimize impacts on any potential southern coastal roach, the following AMMs are recommended.

Recommended Avoidance and Minimization Measures

See Measures 10 through 15, under Potential Wetlands (**Section 6.6**).

6.2.5 Townsend's Big-eared Bat

Townsend's big-eared bat is a California Species of Special Concern, and is designated as "high" priority by the WBWG. This species is found in nearly all habitats except subalpine and alpine habitats throughout California (Harris 1988c). They roost in large cavities such as caves, mines, tunnels, buildings, underpasses, or other human-made structures, and sometimes large hollows of trees (Gruver and Keinath 2006). They are generally found in dry uplands, but also occur in mesic habitats such as coniferous and deciduous forest (Kunz and Martin 1982). Townsend's big-eared bat is extremely sensitive to disturbance of roosting sites (Gruver and Keinath 2006). Maternity roosts consist of small clusters or groups of females and offspring (Zeiner et al. 1988-1990).

Suitable buildings or hollow trees in the vicinity of the study area may provide suitable roosting habitat for Townsend's big-eared bat. In the unlikely event that such habitat is occupied, project activities could disturb any roosting individuals or colonies. To avoid or minimize impacts on any potential Townsend's big-eared bat, the following AMM is recommended.

Recommended Avoidance and Minimization Measure

Measure 5. A qualified biologist will conduct a preconstruction survey for roosting bats within 2 weeks prior to construction to ensure that no roosting bats will be disturbed during construction.

If roosting surveys identify any active roosts, the biologist will implement an appropriate avoidance buffer. The buffer size may be determined in consultation with CDFW. Suggested buffer distances for specific species and work types accepted by CalTrans are described in H.T. Harvey and Associates 2019. No work may occur within the buffer until the biologist has determined that the roost is no longer active.

In the instance that an active roost may not be avoided and buffered as described above, a qualified bat biologist shall develop a mitigation plan addressing compensation, exclusion methods, and roost removal procedures prior to implementation (see Johnston 2004, H.T. Harvey and Associates 2021. The referenced resources provide detailed alternatives that may be considered on a case-by-case basis. For example, the bats will be excluded from the roosting site before the roost is removed. Exclusion methods may include use of one-way doors at roost entrances (bats may leave, but not reenter), or sealing roost entrances when the site can be confirmed to contain no bats. Exclusion efforts may be restricted during periods of sensitive activity (e.g., during hibernation or while females in maternity colonies are nursing young). Disturbing activities, roost exclusion and destruction may not commence until permanent bat houses suitable for the affected species have been installed outside of the construction area near the original roost. Placement and height will be determined by a qualified bat biologist, typically at least 15 feet. Bat houses will be multi-chambered and constructed in accordance with CDFW standards. The number of bat houses required will be dependent upon the size and number of individuals and/or colonies found.

If preconstruction surveys indicate that no roosting is present, or potential roosting habitat is unoccupied during the construction period, no further action is required. Trees and shrubs within the construction footprint that have been determined to be unoccupied by roosting bats or that are located outside the avoidance buffer for active roosting sites may be removed.

6.2.6 Western Red Bat

The western red bat is a CDFW Species of Special Concern and is designated as “high” priority by the WBWG. The western red bat ranges from southern Canada through the western United States to Central America. This bat is a migratory species to varying degrees, and may be found in forests roosting in the foliage of trees. The roosting locations of the western red bat are often adjacent to streams and urban areas, and are in areas with high tree cover above but open from below. This species prefers to live on the edges of forests with open areas for foraging nearby (Harris 1998d).

The riparian and naturalized/ornamental woodland of the study area may provide suitable roosting habitat for western red bat. Project activities could disturb any potential roosting individuals or colonies. To avoid or minimize impacts on any potential western red bat, the following AMM is recommended.

Recommended Avoidance and Minimization Measure

See Measure 5, under Townsend's Big-eared Bat (**Section 6.2.5**).

6.2.7 Hoary Bat

Hoary bat is listed by the WBWG as "medium" priority. Hoary bat is the most widespread North American bat, and can be found in almost all areas of California. This species winters along the coast and in southern California. They breed and roost in woodlands and forests with medium to large-sized trees with dense foliage, and can be found in foothills, deserts, mountains, lowlands, and coastal valleys during their migration. Hoary bat requires a source of water nearby, and prefers open habitats, with access to open areas for foraging and trees for cover. They mate in autumn, with young born from May through July (Harris 1998a).

This bat species could roost in trees or structures within or adjacent to the study area that have suitable cavities, crevices, and exfoliating bark and/or bark fissures.

Recommended Avoidance and Minimization Measure

See Measure 5, under Townsend's Big-eared Bat (**Section 6.2.5**).

6.2.8 San Francisco Dusky-footed Woodrat

San Francisco dusky-footed woodrat is a CDFW Species of Special Concern. The San Francisco dusky-footed woodrat occupies a region that extends along the coastal mountain range from central California to Oregon (Hickman 2016). The species primarily inhabits riparian habitats, where it forages for nuts, fungi, and various foliage (Brylski 1988, Linsdale and Tevis 1951), but also prefers areas with chaparral and oak woodlands (Hickman 2016). Like the riparian woodrat and other woodrats, the San Francisco dusky-footed woodrat builds large stick houses. They create large terrestrial woodpiles as dens for refuge and nesting, often 2 to 5-feet in height and 4 to 8-feet in base diameter. Their nests are often found against the base of logs and other woody debris, atop exposed roots of trees, within rock piles and under shrubbery, and occasionally suspended in low riparian trees or bushes (English 1923, Hickman 2016).

Valley Water staff have observed woodrats utilizing shrubbery within the valve yard area (J. Abelm pers. comm. 9/7/2022), as well as urban oak woodlands and other habitats away from riparian areas (S. Lockwood, pers. comm. 2/24/2022). San Francisco dusky-footed woodrat nests were observed within the study area (**Figure 4**).

Recommended Avoidance and Minimization Measure

Measure 6. The applicant will minimize potential adverse effects to the San Francisco dusky-footed woodrat by limiting, to the maximum extent possible, the project actions to existing developed access routes, construction areas, equipment staging, storage, parking, and stockpile areas.

If ground disturbance is required, a qualified biologist must perform a field evaluation of the mapped nests within the study area prior to the date of initial ground disturbance at the project site. If the biologist determines the nests are active at the time of survey, a buffer will be established as deemed appropriate by the biologist.

If an acceptable buffer around any observed nests cannot be avoided, the dens must be relocated (following standards acceptable to CDFW) to an appropriate distance and location away from the project construction activity. Alternatively, a relocation plan may be developed and approved by CDFW prior to undertaking woodrat nest relocation. The relocation plan shall consider proximity, seasonal timing, and adjacent habitat features when developing the relocation position for individual nests. The timing of animal handling and confinement will also be factored into the relocation tactics to ensure maximum chance of success.

6.2.9 Southwestern Pond Turtle

Southwestern pond turtle is a CDFW Species of Special Concern. Southwestern pond turtles often bask outside of the water, but quickly re-enter if they are threatened. They are found in rivers, streams, lakes, ponds wetlands, reservoirs, and brackish estuarine waters (Holland 1994; Jennings and Hayes 1994). They prefer habitats with areas for cover (vegetation, logs) and basking sites (rocks and other substrates) (Holland 1994). Summer droughts and cold winters are survived by aestivating or burying in loose soil or mud. Southwestern pond turtles are omnivores, with the potential to be opportunistic predators and scavengers (Holland 1985a, 1985b, Bury 1986). Females leave drying creeks from May to July to lay eggs in sunny upland habitats, including grazed pastures (Zeiner et al. 1988-1990).

The southwestern pond turtle is declining in most of its range. It has seen extensive habitat loss, in part due to predation as well as competition from introduced animals, including exotic pet turtles that have been released into the wild (Zeiner et al. 1988-1990).

Southwestern pond turtle is a covered species under the HCP/NCCP through the associated permitting process for covered activities. Projects covered under the regional general permit are subject to specific project conditions and requirements. To avoid or minimize impacts on individual southwestern pond turtle, the following AMMs are recommended.

Recommended Avoidance and Minimization Measures

See Measure 2, above, regarding HCP/NCCP Permit.

Measure 7. In the event that a southwestern pond turtle individual is identified within the project site during construction activities, Valley Water staff have indicated they will voluntarily send a pre-approved qualified biologist to move the southwestern pond turtle individual to the closest suitable habitat outside of the project impact area per existing pre-approval from USFWS and CDFW.

Alternatively, exclusionary fencing may be erected around the construction site during ground-disturbing activities after a qualified biologist has surveyed the affected area for WPT individuals and/or nest sites. A qualified biologist will visit the site weekly to ensure that the fencing is in good working condition. Fencing material and design may be subject to the approval of the CDFW. If exclusionary fencing is not used, a qualified biological monitor will be on-site during all ground disturbance activities. Exclusion fencing will also be placed around all spoils and stockpiles.

6.3 Migratory and Nesting Birds

The MBTA (16 U.S.C. 704) and the CFGC (Section 3503) prohibit the take of migratory birds as well as disturbance to the active nests of most native birds, including Loggerhead Shrike, and Yellow Warbler. Specifically, CFGC Section 3503.5 protects raptor nests year-round, regardless of active occupation status. The trees and scrub in the study area could support nests of multiple migratory bird species protected by MBTA and CFGC, including raptors and birds with state and federal listing status.

Structure, tree or vegetation removal could result in direct loss of birds protected by the MBTA. Additionally, construction-related activity could result in the abandonment of an active nest in trees adjacent to the study area, including potential nests of special-status bird species.

Recommended Avoidance and Minimization Measure

Note that the following measure text is taken directly from the Valley Water's BI-5 and BI-6 BMPs (Santa Clara Valley Water District 2014). Specific BMP identification is provided in parentheses.

Measure 8. 1) Nesting birds are protected by state and federal laws. Valley Water 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-5).

2) 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-6).

3) If inactive raptor nests need to be removed, Valley Water must consult with and seek permission from CDFW.

6.4 Non-listed Special-Status Plant Species

Table B-2 in **Appendix B** lists CRPR-designated plant taxa known from the vicinity of the study area, as compiled from a CNPS 4-quadrangle search. There is low likelihood that these species occur within the study area due to lack of specific substrate, being out of elevational range, or disturbed status of the site. Furthermore, the study area is dominated by artificial fill soils and habitats are highly disturbed and co-dominated by invasive species.

6.5 Protected Trees

Potentially protected trees occur throughout all wooded portions of the study area (Chapter 29, Article I, Division 2, Town of Los Gatos n.d.). The Town of Los Gatos requires permits for impacts (i.e. defined levels of pruning, root cutting, actions causing ultimate death, and/or removal) of protected trees. The permit may stipulate replacement trees.

Recommended Avoidance and Minimization Measure

Measure 9. If any impacts to trees with a diameter at breast height (DBH) of four inches or greater are anticipated, an arborist's report should be completed and appropriate City permits acquired prior to project start. To the extent practical, any impacts to such trees should be avoided. If needed, the Arborist Report and permit should provide protection and mitigation measures for the project. The project should follow all requirements and stipulations outlined in the permit.

6.6 Potential Wetlands

Los Gatos Creek and the potential wetlands (if determined to be jurisdictional) within the artificial pond area would be subject to CWA compliance through the ACOE and/or RWQCB. The riparian woodland habitat associated with Los Gatos Creek is protected by Sections 1602-1603 of the CFGC. Although no work is anticipated to occur within the artificial pond or creek, the waterways and potential wetlands are immediately adjacent to the anticipated project site and would be protected by the following AMMs.

Recommended Avoidance and Minimization Measures

Note that the following AMMs are taken directly from the Valley Water's Hydrology/Water Quality BMPs (Santa Clara Valley Water District 2014).

Measure 10. Limit Impacts From Staging and Stockpiling Materials (WQ-4)

1) To protect on-site vegetation and water quality, staging areas should occur on access roads, surface streets, or other disturbed areas that are already compacted and only support ruderal vegetation. Similarly, all equipment and materials (e.g., road rock and project spoil) will be contained within the existing service roads, paved roads, or other pre-determined staging areas.

2) Building materials and other project-related materials, including chemicals and sediment, will not be stockpiled or stored where they could spill into water bodies or storm drains.

3) No runoff from the staging areas may be allowed to enter water ways, including the creek channel or storm drains, without being subjected to adequate filtration (e.g., vegetated buffer, swale, hay wattles or bales, silt screens).

4) The discharge of decant water to water ways from any on-site temporary sediment stockpile or storage areas is prohibited.

5) During the wet season, no stockpiled soils will remain exposed, unless surrounded by properly installed and maintained silt fencing or other means of erosion control. During the dry season; exposed, dry stockpiles will be watered, enclosed, covered, or sprayed with non-toxic soil stabilizers.

Measure 11. Disturbed areas shall be seeded 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. (WQ-9)

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.

Measure 12. Maintain Clean Conditions at Work Sites (WQ-11)

1) The work site, areas adjacent to the work site, and access roads will be maintained in an orderly condition, free and clear from debris and discarded materials on a daily basis. Debris may include unused or discarded construction

materials, lunch wrappers, cigarette butts, etc. Personnel will not sweep, grade, or flush surplus materials, rubbish, debris, or dust into storm drains or waterways.

2) For activities that last more than one day, materials or equipment left on the site overnight will be stored as inconspicuously as possible, and will be neatly arranged. Any materials and equipment left on the site overnight will be stored to avoid erosion, leaks, or other potential impacts to water quality

3) Upon completion of work, all building materials, debris, unused materials, concrete forms, and other construction-related materials will be removed from the work site. Prevent litter from escaping by covering loads that are being transported to and from site.

Measure 13. Prevent Water Pollution (WQ-15)

1) 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.

2) For projects that disturb over one acre of soil, Valley Water will comply with the Construction General Permit (Order 2009-009-DWQ). All project must comply with the Municipal Regional Stormwater Permit Provision C.6. Construction Site Control.

Measure 14. Prevent Stormwater Pollution (WQ-16)

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, including all products containing plastic or monofilament materials, 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.

Measure 15. Temporary sanitary facilities will be located on jobs that last multiple days, in compliance with California Division of Occupational Safety and Health (Cal/OSHA) regulation 8 California Code of Regulations 1526. All temporary sanitary facilities will be located where overflow or spillage will not enter a watercourse directly (overbank) or indirectly (through a storm drain). (WQ-17)

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APPENDIX A:
REPRESENTATIVE PHOTOGRAPHS OF THE STUDY AREA

(Recorded October 28, 2021)

Representative Photographs of the Study Area

Developed VSP buildings and paved area (project site)
Facing east from valve yard

Anticipated staging area in east study area (project site)
Facing east

Representative Photographs of the Study Area

Access road along northern study area parcel (looking into project site)
Facing south towards VSP valve yard

Riparian habitat along Los Gatos Creek (outside project site)
Facing north

Representative Photographs of the Study Area

View of VSP area with artificial pond area and Los Gatos Creek in foreground
Facing east from multi-use path (taken outside project site)

Western potential staging area (potential project site)
From center of the study area facing west

Representative Photographs of the Study Area

Example of aerial woodrat nest within western parcels (potential project site)
Within coast live oak tree

Example of ornamental/naturalized vegetation south of VSP buildings
Facing east (taken outside of project site)

APPENDIX B:
SPECIAL-STATUS SPECIES TABLES

TABLE B-1. Special-Status Animal Species Documented within the Vicinity of the Study Area

Species highlighted in gray have potential to occur onsite.

Species	Status[1]	Description of Habitat Requirements	Potential to Occur in Study Area
Amphibians			
California tiger salamander *Ambystoma californiense*	FT, ST	Grasslands and low foothills, with vernal pools for breeding.	**Absent.** Artificial ponds on-site are highly managed and no suitable upland habitat exists.
Santa Cruz black salamander *Aneides niger*	SSC	Inhabits coastal grassland, open oak and conifer woodlands, redwood forest, mixed evergreen forest and along riparian corridors; adults found under rocks, talus, and damp woody debris.	**Absent.** Study area is outside of species' known range (CDFW 2021).
California giant salamander *Dicamptodon ensatus*	SSC	Adults rarely seen, but sometimes on surface in wet conditions, under rocks or woody debris, or in creeks; larvae found in cold, clear streams, often near headwaters. Mostly associated with dense scrub and forested areas including redwoods.	**Absent.** All nearby occurrences are further west and at higher elevations in the Santa Cruz Mountains (CDFW 2021).
Foothill yellow-legged frog *Rana boylii*	SE, SSC	Rocky, high gradient streams and rivers with rocky substrate and open, sunny banks; forests, chaparral, woodland.	**Absent.** All extant occurrences are located above reservoirs in upper watersheds, while study area is located in urbanized lowlands where species has essentially disappeared (CDFW 2021).
California red-legged frog *Rana draytonii*	FT, SSC	Marshes, stream pools, reservoirs, and ponds. Uses both riparian and upland habitats for foraging, shelter, cover, and non-dispersal movement.	**Potential.** Stream within the study area could provide potential habitat, although little to no suitable surrounding upland habitat in development. Bullfrog and non-native fish reduce the habitat suitability for the species. CRLF are known from upstream tributaries to Los Gatos Creek. Although occurrence within the study area is unlikely, it is not absent.
Birds			
Cooper's Hawk *Accipiter cooperii*	WL	Nests in coast live oaks and other forest habitat, may use large trees in suburban and urban settings	**Potential.** Suitable large trees for nesting exist in the riparian corridor and oak woodlands.

Species	Status[1]	Description of Habitat Requirements	Potential to Occur in Study Area
Tricolored Blackbird *Agelaius tricolor*	ST, SSC	Nest in large freshwater wetlands and marshes dominated by cattails, bulrushes and willows. Forages in open habitats such as pastures and lawns.	**Absent.** Although potentially suitable wetland habitats exist in the study area, the surrounding urban development lacks suitable for foraging habitat. Furthermore, species is not known to breed in riparian woodland in Santa Clara County nor where completely surrounded by urban areas (S. Lockwood, pers. comm. 2/24/2022).
Golden eagle *Aquila chrysaetos*	FP	Forages in open terrain such as grassland, desert, savannah, or young forests and shrub habitat. Constructs large nests on platforms of steep cliffs or in large trees in open areas.	**Absent as breeder.** Ruderal grasslands and open woodland areas may provide low quality foraging habitat. However, the highly developed surroundings render the immediate area unsuitable for nesting.
Burrowing Owl *Athene cunicularia*	SSC	Open, treeless areas with low, sparse vegetation in grasslands, deserts, pastures, agricultural fields, and more. Associated with mammal burrows, where they also nest.	**Absent.** The species has been actively monitored in the region by the HCP/NCCP (Menzel et al. 2020) and the study area is outside of modelled occupied nesting burrowing owl habitat (ICF International. 2012). Although the ruderal grassland communities within the study area had ground squirrel burrows, these areas also support multiple mature trees that provide ample raptor perches. The suitable foraging area within the ruderal grasslands was also limited.
Swainson's Hawk *Buteo swainsoni*	ST	Breeds in stands with few trees in juniper-sage flats, riparian areas, and in oak savannah in the Central Valley. Forages in adjacent grasslands or suitable grain or alfalfa fields, or livestock pastures.	**Absent as breeder.** Recent observations indicate the species' range is expanding into Santa Clara County (Phillips et. al. 2014). However, habitats in the study area are highly urbanized and extensive foraging habitat is absent.
Yellow Rail *Coturnicops noveboracensis*	SSC	Densely vegetated coastal tidal marshes, seasonally flooded wetlands, and wet meadows.	**Absent.** Has been observed overwintering in Palo Alto Baylands (Shuford and Gardali 2008). The artificial pond has degraded wetland habitat that is disconnected from suitable habitat found along the bay margin.
White-tailed Kite *Elanus leucurus*	FP	Undisturbed open grasslands, meadows, farmlands, and emergent wetlands for foraging. Nests near top of dense oak, willow, or other tree stands.	**Not Expected.** Highly disturbed foraging habitat, lack of prey base, high levels of recreational use adjacent to potential breeding habitat and limited acreage of suitable foraging habitat in the immediate vicinity indicate it is unlikely the species would breed or forage within the site.

Species	Status[1]	Description of Habitat Requirements	Potential to Occur in Study Area
American Peregrine Falcon *Falco peregrinus anatum*	FP	Breeds mostly in woodland, forest, and coastal habitats near wetlands, lakes, rivers, or other water. Nests in a depression or ledge on high cliffs and human-made structures in open sites. Riparian areas and coastal and inland wetlands are important habitats yearlong, especially in nonbreeding seasons.	**Absent as breeder.** While species may forage within the study area, nesting habitat is not present within the study area.
Bald eagle *Haliaeetus leucocephalus*	SE, FP	Nest in forested areas adjacent to large bodies of water. Perch in tall, mature coniferous or deciduous trees.	**Absent as breeder.** Low quality foraging habitat present in wetland and riparian areas. The species is known to nest adjacent to reservoirs in the region, including Anderson Reservoir (J. Abelm pers. comm. 9/7/2022).
Yellow-breasted Chat *Icteria virens*	SSC	Frequents dense, brushy thickets and tangles near water, and thick understory in riparian woodland.	**Absent as breeder.** Study area lacks high quality dense understory which is used for nesting by the species. Species may forage within the study area as summer resident or itinerant migrant. All breeding known in Santa Clara County is in Diablo Range and southern part of the county (S. Lockwood, pers. comm. 2/24/2022).
Loggerhead Shrike *Lanius ludovicianus*	SSC	Common resident and winter visitor in lowlands and foothills of California. Prefers open habitats with scattered shrubs, trees, posts, fences, utility lines, or other perches.	**Not expected.** Open habitat of the study area is limited to degraded ruderal staging areas with scattered shrubs and trees.
California Ridgway's Rail (Clapper Rail) *Rallus obsoletus obsoletus*	FE, SE, FP	Salt and brackish water marsh around San Francisco, Monterey, and Morro bays.	**Absent.** Study area is outside of species' known range (USFWS 2013).
Yellow Warbler *Setophaga petechia*	SSC	Frequents open to medium-density woodlands and forests with a heavy brush understory in breeding season. In migration, found in a variety of sparse to dense woodland and forest habitats.	**Potential.** Study area includes degraded multi-story riparian habitat with some patches of dense understory. Habitat is low quality but may be suitable for breeding or migratory use.
California Least Tern *Sternula antillarum browni*	FE, SE, FP	Nests along the coast from San Francisco Bay south to northern Baja California. Colonial breeder on bare or sparsely vegetated, flat substrates: sand beaches, alkali flats, landfills, or paved areas.	**Absent.** Study area is outside of species' known range (CDFW 2021).
Fish			

Species	Status[1]	Description of Habitat Requirements	Potential to Occur in Study Area
Riffle sculpin *Cottus gulosus*	SSC	Live in permanent, cool, headwater streams where riffles and rocky substrates predominate.	**Potential.** Species has been observed by Valley Water staff in Los Gatos Creek upstream of study area near Lexington Reservoir. The reach of Los Gatos Creek in the study area has warmer temperatures than the preferred range for riffle sculpin. However, incidental individuals may occur in the study area due to stream connectivity. No in-stream work planned and water quality AMMs would provide protection from indirect effects.
Pacific lamprey *Entosphenus tridentatus*	SSC	Utilizes both fresh water and marine habitats. Require cold, clear water for spawning. Found in the Sacramento-San Joaquin Delta and in rivers up to the first impassible dams. Migrating juveniles and returning adults pass through the entire San Francisco estuary.	**Absent.** Although the species may occur in Los Gatos Creek, the Camden Drop Structure downstream of the study area prevents upstream migration to portions of stream into the study area.
Southern coastal roach *Hesperoleucus venustus subditus*	SSC	Small streams and intermittent watercourses. Dense populations are frequently observed in insolated pools. Abundant in mid-elevation streams in the Sierra Nevada foothills and in lower reaches of some San Francisco Bay streams.	**Potential.** Species is known in waterways within Santa Clara County and could occur in Los Gatos Creek. No in-stream work planned and water quality AMMs would provide protection from indirect effects.
Delta smelt *Hypomesus transpacificus*	FT, SE	Endemic to streams, rivers, estuaries in the upper reaches of the San Francisco Bay and Sacramento-San Joaquin Delta Estuary. Restricted to the tidal portions of the Sacramento-San Joaquin Delta. May occur in Suisun Bay, Carquinez Strait & San Pablo Bay during wet years with high Delta outflow.	**Absent.** Study area is outside of species' known range (CDFW 2021).
Steelhead - central California coast DPS *Oncorhynchus mykiss irideus pop. 8*	FT	Streams, rivers, lakes, estuaries, ocean from Russian River south to Soquel Creek and to, but not including, the Pajaro River. Also includes San Francisco and San Pablo Bay Basins.	**Absent.** Although the species may occur in Los Gatos Creek, the Camden Drop Structure downstream of the study area prevents upstream migration to portions of stream into the study area.
chinook salmon - Central Valley fall / late fall-run ESU *Oncorhynchus tshawytscha pop. 13*	SSC	Streams, rivers, estuaries, ocean. Spawn in coarse material that allows sufficient water flow, in the Sacramento and San Joaquin River watersheds as far as the first impassible dams, typically up to 1,000 feet above sea level.	**Absent.** Although the species may occur in Los Gatos Creek, the Camden Drop Structure downstream of the study area prevents upstream migration to portions of stream into the study area.

Species	Status[1]	Description of Habitat Requirements	Potential to Occur in Study Area
Insects			
Monarch butterfly *Danaus plexippus*	FC	Roosts in wind-protected tree groves with nectar and water nearby. Overwinters in tall trees in large groups during migration. Forages on showy nectar source flowers. Breeds on milkweed (*Asclepias* sp.) vegetation. This species is not listed, but the IUCN recognizes the monarch migration as an endangered phenomenon.	**Potential.** Species may breed or forage in the study area. No milkweed was observed during the fall survey but this does not exclude the potential for individual host plants to occur in the study area. Overwintering roosting is not expected within the study area.
Mammals			
Pallid bat *Antrozous pallidus*	SSC, WBWG: H	Mountainous areas, intermontane basins, and lowland desert scrub; arid deserts and grasslands, often near rocky outcrops and water; in some areas, this species also inhabits open coniferous forest and woodland. Species is sensitive to disturbance to roosting sites (Harris 1988b).	**Not expected.** The study area is subject to high levels of human activity. Potential trees roosts in the riparian or other woodland habitat in the study area are close to Valley Water operations, a public multi-use trail and suburban/office developments. One tree cavity was observed along Los Gatos Creek across from the VPS. No guano or urine staining was observed. As a social species, roosting locations may support 20 or more individuals (Zeiner et al. 1988-1990).
Townsend's big-eared bat *Corynorhinus townsendii*	SSC, WBWG: H	Pine forest or desert scrub near caves or other rock formations that provide crevices. Less common roosting habitat includes buildings, bridges, and hollow trees. Foraging habitat typically include edge habitat (wooded habitat) along streams. Species is extremely sensitive to disturbance of roosting sites (Gruver and Keinath 2006).	**Potential.** Species could potentially roost in buildings, overpasses, or hollow trees in the riparian or other woodland habitat within the study area. However, potential is relatively low as the study area is subject to high levels of human activity, including Valley Water operations, a public multi-use trail and suburban/office developments. One tree cavity, lacking guano or urine staining, was observed along Los Gatos Creek across from the VPS. The reconnaissance survey did not cover all buildings and underpass crevices. Solitary individuals, family groups and nursery roosts are known for this species.

Species	Status[1]	Description of Habitat Requirements	Potential to Occur in Study Area
Western red bat *Lasiurus blossevillii*	SSC, WBWG: H	Strongly associated with riparian habitats, particularly mature stands of cottonwood/sycamore in the Central Valley and lower reaches of the large rivers that drain the Sierra Nevada. Day roosts are located commonly in edge habitats adjacent to streams or open fields, in orchards, and sometimes in urban areas. Forage in and among vegetation, including oak woodlands and riparian corridors.	**Potential.** Riparian and naturalized/ornamental woodland in the study area may provide foraging habitat. Although the species is not known to breed in Santa Clara County, it could utilize the study area during seasonally. As a solitary species, it is unlikely to be present in large numbers.
Hoary bat *Lasiurus cinereus*	WBWG:M	Roosts at edge of clearings for coniferous and deciduous woodland/forests. Less likely roosting habitat includes caves, rock ledges, and buildings.	**Potential.** Species could potentially roost in the riparian or other woodland habitat within the study area. As a solitary species, it is unlikely to be present in large numbers.
San Francisco dusky-footed woodrat *Neotoma fuscipes annectens*	SSC	Builds stick homes on ground or within trees in shaded and cool areas, typically within coast live oak and willow forests with thick underbrush.	**Observed.** Multiple nests were observed within the study area in trees and along the ground in the riparian corridor and within the western storage area.
Reptiles			
Southwestern pond turtle *Actinemys pallida*	SSC	Permanent and intermittent waters of rivers, creeks, small lakes and ponds, marshes, unlined irrigation canals, and reservoirs.	**Potential.** Species could potentially occur within Los Gatos Creek. Upland habitat is fragmented, highly developed and impacted by high levels of recreational and operational use. Species is known from Vasona Reservoir upstream from Study Area.
Northern California legless lizard *Anniella pulchra*	SSC	Moist, warm, loose soil in sparsely vegetated areas. Coastal dune, valley-foothill, chaparral, and coastal scrub habitats.	**Absent.** Although the sandy loam soil type in the study area may be suitable, it characterizes the riparian and naturalized/ornamental woodland areas. The open project footprint and staging areas are all actively used for vehicle and equipment access, material storage, parking, and routine maintenance and operations. These areas occur on compacted upland fill and graded, rolled and maintained gravel. Historic occurrence in vicinity is likely extirpated as the observation was made in 1949 in an agricultural field now presumably developed.

Species	Status[1]	Description of Habitat Requirements	Potential to Occur in Study Area
Coast horned lizard *Phrynosoma blainvillii*	SSC	Valley-foothill hardwood, conifer, riparian, and annual grassland habitats in the Sierra Nevada foothills throughout the central and southern California coast. Forage in open areas, usually between shrubs and often near ant nests.	**Absent.** Known from southeast of the study area in intact habitat. Fragmented habitat within the study area is highly impacted by development. Furthermore, the highly invasive Argentine ant (*Linepithema humile*) is found throughout this urbanized area, which severely limits the food base for this specialized lizard.

[1]Status: FT – Federal Threatened; FE – Federal Endangered; FC – Federal Candidate; ST – State Threatened; SE – State Endangered; SSC – CDFW Species of Special Concern; FP – CDFW Fully Protected; WBWG: Western Bat Working Group High (‘H’) or Medium (‘M’) Priority. Species tracked by the CNDDB that are not designated by state, federal, or WBWG are not included in this assessment (e.g., USFS or BLM Sensitive, IUCN ratings).

TABLE B-2. Special-Status Plant Species Documented within the Vicinity of the study area

Scientific Name **Common Name (Family Name)**	**Status, Federal/State/ CRPR[1]**	**Preferred Habitat; Elevation Range; Bloom Period**	**Presence/Quality of Preferred Habitat on the Project Site**
Amsinckia lunaris bent-flowered fiddleneck (Boraginaceae)	-/-/1B.2	Cismontane woodland, Coastal bluff scrub, Valley and foothill grassland; 10-1,640 feet; March-June	No suitable habitat present. Preferred vegetation communities not present in study area.
Arabis blepharophylla coast rockcress (Brassicaceae)	-/-/4.3	Broadleafed upland forest, Coastal bluff scrub, Coastal prairie, Coastal scrub, Rocky; 10-3,610 feet; February-May	No suitable substrate present. Study area is inland from the coast. Forest habitat is riparian and impacted by surrounding development.
Arctostaphylos silvicola Bonny Doon manzanita (Ericaceae)	-/-/1B.2	Chaparral, Closed-cone coniferous forest, Lower montane coniferous forest; 395-1,970 feet; January-March	No suitable habitat present. Preferred elevation range is above study area.
Calandrinia breweri Brewer's calandrinia (Montiaceae)	-/-/4.2	Chaparral, Coastal scrub, Burned areas, Disturbed areas, Loam (sometimes), Sandy (sometimes); 35-4,005 feet; (January) March-June	No suitable habitat present. Disturbance from development not from natural processes.
Centromadia parryi ssp. *congdonii* Congdon's tarplant (Asteraceae)	-/-/1B.1	Valley and foothill grassland; 0-755 feet; May-October (November)	No suitable habitat present. Grassland habitat is ruderal and disturbed by development and ongoing use.
Chorizanthe pungens var. *hartwegiana* Ben Lomond spineflower (Polygonaceae)	FE/-/1B.1	Lower montane coniferous forest; 295-2,000 feet; April-July	No suitable habitat present. Preferred elevation range is above study area.
Chorizanthe robusta var. *robusta* robust spineflower (Polygonaceae)	FE/-/1B.1	Chaparral, Cismontane woodland, Coastal dunes, Coastal scrub; 10-985 feet; April-September	No suitable habitat present. Forest habitat is riparian and impacted by surrounding development.
Cirsium fontinale var. *campylon* Mt. Hamilton thistle (Asteraceae)	-/-/1B.2	Chaparral, Cismontane woodland, Valley and foothill grassland; 330-2,920 feet; (February) April-October	No suitable habitat present. Preferred elevation range is above study area.
Clarkia breweri Brewer's clarkia (Onagraceae)	-/-/4.2	Chaparral, Cismontane woodland, Coastal scrub; 705-3,660 feet; April-June	No suitable habitat present. Preferred elevation range is above study area.

Scientific Name **Common Name (Family Name)**	**Status, Federal/State/ CRPR[1]**	**Preferred Habitat; Elevation Range; Bloom Period**	**Presence/Quality of Preferred Habitat on the Project Site**
Clarkia concinna ssp. *automixa* Santa Clara red ribbons (Onagraceae)	-/-/4.3	Chaparral, Cismontane woodland; 295-4,920 feet; (April) May-June (July)	No suitable habitat present. Preferred elevation range is above study area.
Clarkia lewisii Lewis' clarkia (Onagraceae)	-/-/4.3	Broadleafed upland forest, Chaparral, Cismontane woodland, Closed-cone coniferous forest, Coastal scrub; 100-3,920 feet; May-July	No suitable habitat present. Woodland habitat is riparian and impacted by surrounding development.
Collinsia multicolor San Francisco collinsia (Plantaginaceae)	-/-/1B.2	Closed-cone coniferous forest, Coastal scrub; 100-900 feet; (February) March-May	No suitable vegetation communities present.
Cypripedium fasciculatum clustered lady's-slipper (Orchidaceae)	-/-/4.2	Lower montane coniferous forest, North Coast coniferous forest; 330-7,990 feet; March-August	No suitable habitat present. Preferred elevation range is above study area.
Dirca occidentalis western leatherwood (Thymelaeaceae)	-/-/1B.2	Broadleafed upland forest, Chaparral, Cismontane woodland, Closed-cone coniferous forest, North Coast coniferous forest, Riparian forest, Riparian woodland; 80-1,395 feet; January-March (April)	Not observed during reconnaissance survey. Riparian habitat is highly altered and impacted by surrounding development.
Dudleya abramsii ssp. *setchellii* Santa Clara Valley dudleya (Crassulaceae)	FE/-/1B.1	Cismontane woodland, Valley and foothill grassland, Rocky, Serpentinite; 195-1,755 feet; April-October	No suitable substrates present.
Fritillaria liliacea fragrant fritillary (Liliaceae)	-/-/1B.2	Cismontane woodland, Coastal prairie, Coastal scrub, Valley and foothill grassland; 10-1,345 feet; February-April	Not expected. Woodland and grassland habitat is ruderal. All habitats are highly altered and impacted by surrounding development.
Galium andrewsii ssp. *gatense* phlox-leaf serpentine bedstraw (Rubiaceae)	-/-/4.2	Chaparral, Cismontane woodland, Lower montane coniferous forest; 490-4,755 feet; April-July	No suitable habitat present. Preferred elevation range is above study area.
Hoita strobilina Loma Prieta hoita (Fabaceae)	-/-/1B.1	Chaparral, Cismontane woodland, Riparian woodland; ultramafic;100-2,820 feet; May-July (August-October)	No suitable ultramafic or serpentine substrates in the study area

Scientific Name Common Name (Family Name)	Status, Federal/State/ CRPR[1]	Preferred Habitat; Elevation Range; Bloom Period	Presence/Quality of Preferred Habitat on the Project Site
Iris longipetala coast iris (Iridaceae)	-/-/4.2	Coastal prairie, Lower montane coniferous forest, Meadows and seeps; 0-1,970 feet; March-May (June)	No suitable vegetation communities within the study area.
Leptosiphon acicularis bristly leptosiphon (Polemoniaceae)	-/-/4.2	Chaparral, Cismontane woodland, Coastal prairie, Valley and foothill grassland; 180-4,920 feet; April-July	Not expected. Woodland and grassland habitat is ruderal. All habitats are highly altered and impacted by surrounding development.
Leptosiphon ambiguus serpentine leptosiphon (Polemoniaceae)	-/-/4.2	Cismontane woodland, Coastal scrub, Valley and foothill grassland; 395-3,710 feet; March-June	No suitable habitat present. Preferred elevation range is above study area.
Leptosiphon grandiflorus large-flowered leptosiphon (Polemoniaceae)	-/-/4.2	Cismontane woodland, Closed-cone coniferous forest, Coastal bluff scrub, Coastal dunes, Coastal prairie, Coastal scrub, Valley and foothill grassland; 15-4,005 feet; April-August	Not expected. Woodland and grassland habitat is ruderal. All habitats are highly altered and impacted by surrounding development.
Lessingia hololeuca woolly-headed lessingia (Asteraceae)	-/-/3	Broadleafed upland forest, Coastal scrub, Lower montane coniferous forest, Valley and foothill grassland; 50-1,000 feet; June-October	Not expected. Woodland and grassland habitat is ruderal. All habitats are highly altered and impacted by surrounding development.
Lessingia micradenia var. *glabrata* smooth lessingia (Asteraceae)	-/-/1B.2	Chaparral, Cismontane woodland, Valley and foothill grassland; 395-1,380 feet; (April-June) July-November	No suitable habitat present. Preferred elevation range is above study area.
Lessingia tenuis spring lessingia (Asteraceae)	-/-/4.3	Chaparral, Cismontane woodland, Lower montane coniferous forest; 985-7,055 feet; May-July	No suitable habitat present. Preferred elevation range is above study area.
Malacothamnus arcuatus arcuate bush-mallow (Malvaceae)	-/-/1B.2	Chaparral, Cismontane woodland; 50-1,165 feet; April-September	Not expected. Woodland is highly altered and impacted by surrounding development.
Malacothamnus hallii Hall's bush-mallow (Malvaceae)	-/-/1B.2	Chaparral, Coastal scrub; 35-2,495 feet; (April) May-September (October)	No suitable vegetation communities within the study area.

Scientific Name **Common Name (Family Name)**	**Status, Federal/State/ CRPR[1]**	**Preferred Habitat; Elevation Range; Bloom Period**	**Presence/Quality of Preferred Habitat on the Project Site**
Monolopia gracilens woodland woollythreads (Asteraceae)	-/-/1B.2	Broadleafed upland forest, Chaparral, Cismontane woodland, North Coast coniferous forest, Valley and foothill grassland; 330-3,935 feet; (February) March-July	No suitable habitat present. Preferred elevation range is above study area.
Pedicularis dudleyi Dudley's lousewort (Orobanchaceae)	-/CR/1B.2	Chaparral, Cismontane woodland, North Coast coniferous forest, Valley and foothill grassland; 195-2,955 feet; April-June	Not expected. Woodland and grassland habitat is ruderal. All habitats are highly altered and impacted by surrounding development.
Pentachaeta bellidiflora white-rayed pentachaeta (Asteraceae)	FE/CE/1B.1	Cismontane woodland, Valley and foothill grassland; 115-2,035 feet; March-May	Not expected. Woodland and grassland habitat is ruderal. All habitats are highly altered and impacted by surrounding development.
Piperia candida white-flowered rein orchid (Orchidaceae)	-/-/1B.2	Broadleafed upland forest, Lower montane coniferous forest, North Coast coniferous forest; 100-4,300 feet; (March) May-September	Not expected. Woodland is highly altered and impacted by surrounding development.
Plagiobothrys chorisianus var. *hickmanii* Hickman's popcornflower (Boraginaceae)	-/-/4.2	Chaparral, Closed-cone coniferous forest, Coastal scrub, Marshes and swamps, Vernal pools; 50-1,280 feet; April-June	No suitable vegetation communities within the study area.
Plagiobothrys glaber hairless popcornflower (Boraginaceae)	-/-/1A	Marshes and swamps, Meadows and seeps; 50-590 feet; March-May	No suitable vegetation communities within the study area.
Sanicula saxatilis rock sanicle (Apiaceae)	-/CR/1B.2	Broadleafed upland forest, Chaparral, Valley and foothill grassland; 2,035-3,855 feet; April-May	No suitable habitat present. Preferred elevation range is above study area.
Streptanthus albidus ssp. *peramoenus* most beautiful jewelflower (Brassicaceae)	-/-/1B.2	Chaparral, Cismontane woodland, Valley and foothill grassland; 310-3,280 feet; (March) April-September (October)	No suitable habitat present. Preferred elevation range is above study area.
Trifolium buckwestiorum Santa Cruz clover (Fabaceae)	-/-/1B.1	Broadleafed upland forest, Cismontane woodland, Coastal prairie; 345-2,000 feet; April-October	No suitable habitat present. Preferred elevation range is above study area.

Scientific Name Common Name (Family Name)	Status, Federal/State/ CRPR[1]	Preferred Habitat; Elevation Range; Bloom Period	Presence/Quality of Preferred Habitat on the Project Site
Trifolium hydrophilum saline clover (Fabaceae)	-/-/1B.2	Marshes and swamps, Valley and foothill grassland, Vernal pools; 0-985 feet; April-June	Not expected. Grassland is ruderal and impacted by surrounding development.

Notes:
Compiled from a CNPS 4-Quad search of the Cupertino, San Jose West, Castle Rock Ridge, and Los Gatos quadrangles.
Bloom Periods in Parentheses indicate that the species *occasionally* blooms during that period.

[1]Rarity Status Codes:
E = Federally or State listed as Endangered
T = Federally or State listed as Threatened
R = State listed as Rare

CRPR Codes:
CRPR 1A: Plants presumed extirpated in California and either rare or extinct elsewhere; CRPR List 1B = Plants rare, threatened or endangered in CA and elsewhere; CRPR 2B = Plants rare, threatened or endangered in California but more common elsewhere; CRPR 3 = More information is needed about plant; CRPR 4 = Plants of limited distribution, a watch list

CRPR: '.1' = Seriously threatened in CA; '.2' = Fairly threatened in CA; '.3' = Not very threatened in CA

APPENDIX C:
USFWS IPAC SEARCH RESULTS

IPaC **U.S. Fish & Wildlife Service**

IPaC resource list

This report is an automatically generated list of species and other resources such as critical habitat (collectively referred to as *trust resources*) under the U.S. Fish and Wildlife Service's (USFWS) jurisdiction that are known or expected to be on or near the project area referenced below. The list may also include trust resources that occur outside of the project area, but that could potentially be directly or indirectly affected by activities in the project area. However, determining the likelihood and extent of effects a project may have on trust resources typically requires gathering additional site-specific (e.g., vegetation/species surveys) and project-specific (e.g., magnitude and timing of proposed activities) information.

Below is a summary of the project information you provided and contact information for the USFWS office(s) with jurisdiction in the defined project area. Please read the introduction to each section that follows (Endangered Species, Migratory Birds, USFWS Facilities, and NWI Wetlands) for additional information applicable to the trust resources addressed in that section.

Location

Santa Clara County, California

Local office

Sacramento Fish And Wildlife Office

(916) 414-6600
(916) 414-6713

Federal Building
2800 Cottage Way, Room W-2605
Sacramento, CA 95825-1846

Endangered species

This resource list is for informational purposes only and does not constitute an analysis of project level impacts.

The primary information used to generate this list is the known or expected range of each species. Additional areas of influence (AOI) for species are also considered. An AOI includes areas outside of the species range if the species could be indirectly affected by activities in that area (e.g., placing a dam upstream of a fish population even if that fish does not occur at the dam site, may indirectly impact the species by reducing or eliminating water flow downstream). Because species can move, and site conditions can change, the species on this list are not guaranteed to be found on or near the project area. To fully determine any potential effects to species, additional site-specific and project-specific information is often required.

Section 7 of the Endangered Species Act **requires** Federal agencies to "request of the Secretary information whether any species which is listed or proposed to be listed may be present in the area of such proposed action" for any project that is conducted, permitted, funded, or licensed by any Federal agency. A letter from the local office and a species list which fulfills this requirement can **only** be obtained by requesting an official species list from either the Regulatory Review section in IPaC (see directions below) or from the local field office directly.

For project evaluations that require USFWS concurrence/review, please return to the IPaC website and request an official species list by doing the following:

1. Draw the project location and click CONTINUE.
2. Click DEFINE PROJECT.
3. Log in (if directed to do so).
4. Provide a name and description for your project.
5. Click REQUEST SPECIES LIST.

Listed species[1] and their critical habitats are managed by the Ecological Services Program of the U.S. Fish and Wildlife Service (USFWS) and the fisheries division of the National Oceanic and Atmospheric Administration (NOAA Fisheries[2]).

Species and critical habitats under the sole responsibility of NOAA Fisheries are **not** shown on this list. Please contact NOAA Fisheries for species under their jurisdiction.

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1. Species listed under the Endangered Species Act are threatened or endangered; IPaC also shows species that are candidates, or proposed, for listing. See the listing status page for more information. IPaC only shows species that are regulated by USFWS (see FAQ).
2. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

The following species are potentially affected by activities in this location:

Birds

NAME	STATUS

California Clapper Rail Rallus longirostris obsoletus — Endangered
Wherever found
No critical habitat has been designated for this species.
https://ecos.fws.gov/ecp/species/4240

California Least Tern Sterna antillarum browni — Endangered
Wherever found
No critical habitat has been designated for this species.
https://ecos.fws.gov/ecp/species/8104

Amphibians

NAME	STATUS
California Red-legged Frog Rana draytonii Wherever found There is **final** critical habitat for this species. The location of the critical habitat is not available. https://ecos.fws.gov/ecp/species/2891	Threatened
California Tiger Salamander Ambystoma californiense There is **final** critical habitat for this species. The location of the critical habitat is not available. https://ecos.fws.gov/ecp/species/2076	Threatened

Fishes

NAME	STATUS
Delta Smelt Hypomesus transpacificus Wherever found There is **final** critical habitat for this species. The location of the critical habitat is not available. https://ecos.fws.gov/ecp/species/321	Threatened

Insects

NAME	STATUS
Monarch Butterfly Danaus plexippus Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/9743	Candidate

Flowering Plants

NAME	STATUS

Robust Spineflower Chorizanthe robusta var. robusta | Endangered
Wherever found

There is **final** critical habitat for this species. The location of the critical habitat is not available.
https://ecos.fws.gov/ecp/species/9287

Critical habitats

Potential effects to critical habitat(s) in this location must be analyzed along with the endangered species themselves.

THERE ARE NO CRITICAL HABITATS AT THIS LOCATION.

Migratory birds

Certain birds are protected under the Migratory Bird Treaty Act[1] and the Bald and Golden Eagle Protection Act[2].

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats should follow appropriate regulations and consider implementing appropriate conservation measures, as described below.

1. The Migratory Birds Treaty Act of 1918.
2. The Bald and Golden Eagle Protection Act of 1940.

Additional information can be found using the following links:

- Birds of Conservation Concern http://www.fws.gov/birds/management/managed-species/birds-of-conservation-concern.php
- Measures for avoiding and minimizing impacts to birds http://www.fws.gov/birds/management/project-assessment-tools-and-guidance/conservation-measures.php
- Nationwide conservation measures for birds http://www.fws.gov/migratorybirds/pdf/management/nationwidestandardconservationmeasures.pdf

The birds listed below are birds of particular concern either because they occur on the USFWS Birds of Conservation Concern (BCC) list or warrant special attention in your project location. To learn more about the levels of concern for birds on your list and how this list is generated, see the FAQ below. This is not a list of every bird you may find in this location, nor a guarantee that every bird on this list will be found in your project area. To see exact locations of where birders and the general public have sighted birds in and around your project area, visit the E-bird data mapping tool (Tip: enter your location, desired date range and a species on your list). For projects that occur off the Atlantic Coast, additional maps and models detailing the relative occurrence and abundance of bird species on your list are available. Links to additional information about Atlantic Coast birds, and other important information about your migratory bird list, including how to properly interpret and use your migratory bird report, can be found below.

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, click on the PROBABILITY OF PRESENCE SUMMARY at the top of your list to see when these birds are most likely to be present and breeding in your project area.

NAME	BREEDING SEASON (IF A BREEDING SEASON IS INDICATED FOR A BIRD ON YOUR LIST, THE BIRD MAY BREED IN YOUR PROJECT AREA SOMETIME WITHIN THE TIMEFRAME SPECIFIED, WHICH IS A VERY LIBERAL ESTIMATE OF THE DATES INSIDE WHICH THE BIRD BREEDS ACROSS ITS ENTIRE RANGE. "BREEDS ELSEWHERE" INDICATES THAT THE BIRD DOES NOT LIKELY BREED IN YOUR PROJECT AREA.)
Allen's Hummingbird Selasphorus sasin This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9637	Breeds Feb 1 to Jul 15
Bald Eagle Haliaeetus leucocephalus This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/1626	Breeds Jan 1 to Aug 31
California Thrasher Toxostoma redivivum This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds Jan 1 to Jul 31
Clark's Grebe Aechmophorus clarkii This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds Jun 1 to Aug 31
Common Yellowthroat Geothlypis trichas sinuosa This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/2084	Breeds May 20 to Jul 31

Golden Eagle Aquila chrysaetos — Breeds Jan 1 to Aug 31

This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.
https://ecos.fws.gov/ecp/species/1680

Lawrence's Goldfinch Carduelis lawrencei — Breeds Mar 20 to Sep 20

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/9464

Nuttall's Woodpecker Picoides nuttallii — Breeds Apr 1 to Jul 20

This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA
https://ecos.fws.gov/ecp/species/9410

Oak Titmouse Baeolophus inornatus — Breeds Mar 15 to Jul 15

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/9656

Olive-sided Flycatcher Contopus cooperi — Breeds May 20 to Aug 31

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/3914

Wrentit Chamaea fasciata — Breeds Mar 15 to Aug 10

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Probability of Presence Summary

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read and understand the FAQ "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

Probability of Presence (■)

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey effort (see below) can be used to establish a level of confidence in the presence score. One can have higher confidence in the presence score if the corresponding survey effort is also high.

How is the probability of presence score calculated? The calculation is done in three steps:

1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.
2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is 0.25/0.25 = 1; at week 20 it is 0.05/0.25 = 0.2.
3. The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

To see a bar's probability of presence score, simply hover your mouse cursor over the bar.

Breeding Season (■)
Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

Survey Effort (|)
Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps. The number of surveys is expressed as a range, for example, 33 to 64 surveys.

To see a bar's survey effort range, simply hover your mouse cursor over the bar.

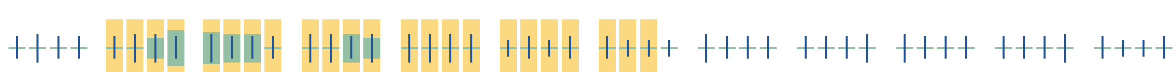
No Data (–)
A week is marked as having no data if there were no survey events for that week.

Survey Timeframe
Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.

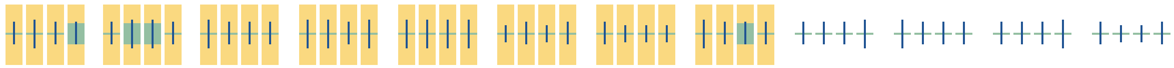
■ probability of presence ■ breeding season | survey effort – no data

SPECIES JAN FEB MAR APR MAY JUN JUL AUG SEP OCT NOV DEC

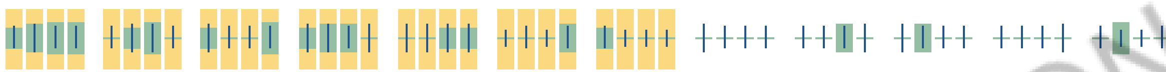
Allen's Hummingbird
BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)



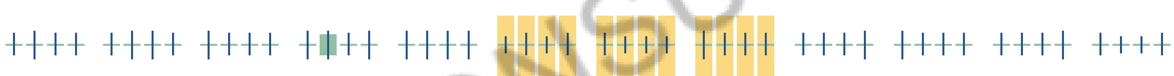
Bald Eagle
Non-BCC Vulnerable (This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.)



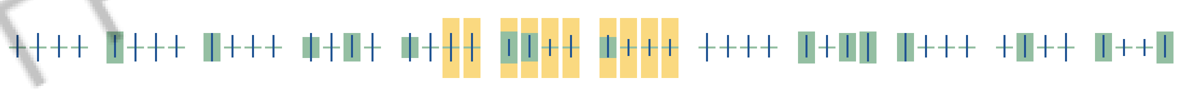
California Thrasher
BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)



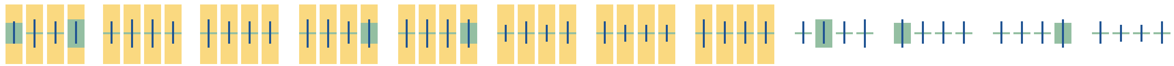
Clark's Grebe
BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)



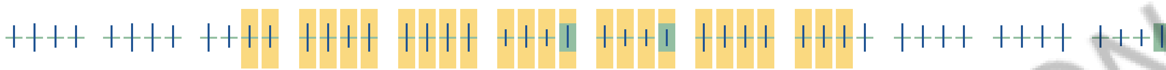
Common Yellowthroat
BCC - BCR (This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA)



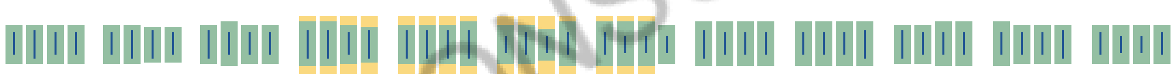
Golden Eagle
Non-BCC Vulnerable (This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.)



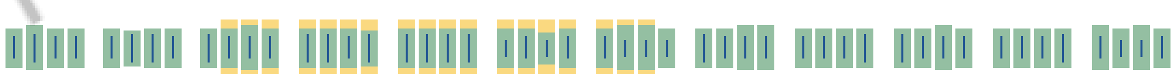
Lawrence's Goldfinch
BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)



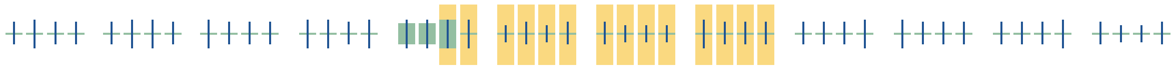
Nuttall's Woodpecker
BCC - BCR (This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA)



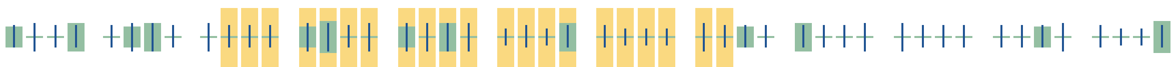
Oak Titmouse
BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)



Olive-sided Flycatcher
BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)



Wrentit
BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)



Tell me more about conservation measures I can implement to avoid or minimize impacts to migratory birds.

Nationwide Conservation Measures describes measures that can help avoid and minimize impacts to all birds at any location year round. Implementation of these measures is particularly important when birds are most likely to occur in the project area. When birds may be breeding in the area, identifying the locations of any active nests and avoiding their destruction is a very helpful impact minimization measure. To see when birds are most likely to occur and be breeding in your project area, view the Probability of Presence Summary. Additional measures or permits may be advisable depending on the type of activity you are conducting and the type of infrastructure or bird species present on your project site.

What does IPaC use to generate the migratory birds potentially occurring in my specified location?

The Migratory Bird Resource List is comprised of USFWS Birds of Conservation Concern (BCC) and other species that may warrant special attention in your project location.

The migratory bird list generated for your project is derived from data provided by the Avian Knowledge Network (AKN). The AKN data is based on a growing collection of survey, banding, and citizen science datasets and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle (Eagle Act requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the AKN Phenology Tool.

What does IPaC use to generate the probability of presence graphs for the migratory birds potentially occurring in my specified location?

The probability of presence graphs associated with your migratory bird list are based on data provided by the Avian Knowledge Network (AKN). This data is derived from a growing collection of survey, banding, and citizen science datasets .

Probability of presence data is continuously being updated as new and better information becomes available. To learn more about how the probability of presence graphs are produced and how to interpret them, go the Probability of Presence Summary and then click on the "Tell me about these graphs" link.

How do I know if a bird is breeding, wintering, migrating or present year-round in my project area?

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating or year-round), you may refer to the following resources: The Cornell Lab of Ornithology All About Birds Bird Guide, or (if you are unsuccessful in locating the bird of interest there), the Cornell Lab of Ornithology Neotropical Birds guide. If a bird on your migratory bird species list has a breeding season associated with it, if that bird does occur in your project area, there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

What are the levels of concern for migratory birds?

Migratory birds delivered through IPaC fall into the following distinct categories of concern:

1. "BCC Rangewide" birds are Birds of Conservation Concern (BCC) that are of concern throughout their range anywhere within the USA (including Hawaii, the Pacific Islands, Puerto Rico, and the Virgin Islands);
2. "BCC - BCR" birds are BCCs that are of concern only in particular Bird Conservation Regions (BCRs) in the continental USA; and
3. "Non-BCC - Vulnerable" birds are not BCC species in your project area, but appear on your list either because of the Eagle Act requirements (for eagles) or (for non-eagles) potential susceptibilities in offshore areas from certain types of development or activities (e.g. offshore energy development or longline fishing).

Although it is important to try to avoid and minimize impacts to all birds, efforts should be made, in particular, to avoid and minimize impacts to the birds on this list, especially eagles and BCC species of rangewide concern. For more information on conservation measures you can implement to help avoid and minimize migratory bird impacts and requirements for eagles, please see the FAQs for these topics.

Details about birds that are potentially affected by offshore projects

For additional details about the relative occurrence and abundance of both individual bird species and groups of bird species within your project area off the Atlantic Coast, please visit the Northeast Ocean Data Portal. The Portal also offers data and information about other taxa besides birds that may be helpful to you in your project review. Alternately, you may download the bird model results files underlying the portal maps through the NOAA NCCOS Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf project webpage.

Bird tracking data can also provide additional details about occurrence and habitat use throughout the year, including migration. Models relying on survey data may not include this information. For additional information on marine bird tracking data, see the Diving Bird Study and the nanotag studies or contact Caleb Spiegel or Pam Loring.

What if I have eagles on my list?

If your project has the potential to disturb or kill eagles, you may need to obtain a permit to avoid violating the Eagle Act should such impacts occur.

Proper Interpretation and Use of Your Migratory Bird Report

The migratory bird list generated is not a list of all birds in your project area, only a subset of birds of priority concern. To learn more about how your list is generated, and see options for identifying what other birds may be in your project area, please see the FAQ "What does IPaC use to generate the migratory birds potentially occurring in my specified location". Please be aware this report provides the "probability of presence" of birds within the 10 km grid cell(s) that overlap your project; not your exact project footprint. On the graphs provided, please also look carefully at the survey effort (indicated by the black vertical bar) and for the existence of the "no data" indicator (a red horizontal bar). A high survey effort is the key component. If the survey effort is high, then the probability of presence score can be viewed as more dependable. In contrast, a low survey effort bar or no data bar means a lack of data and, therefore, a lack of certainty about presence of the species. This list is not perfect; it is simply a starting point for identifying what birds of concern have the potential to be in your project area, when they might be there, and if they might be breeding (which means nests might be present). The list helps you know what to look for to confirm presence, and helps guide you in knowing when to implement conservation measures to avoid or minimize potential impacts from your project activities, should presence be confirmed. To learn more about conservation measures, visit the FAQ "Tell me about conservation measures I can implement to avoid or minimize impacts to migratory birds" at the bottom of your migratory bird trust resources page.

Facilities

National Wildlife Refuge lands

Any activity proposed on lands managed by the National Wildlife Refuge system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

THERE ARE NO REFUGE LANDS AT THIS LOCATION.

Fish hatcheries

THERE ARE NO FISH HATCHERIES AT THIS LOCATION.

Wetlands in the National Wetlands Inventory

Impacts to NWI wetlands and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local U.S. Army Corps of Engineers District.

WETLAND INFORMATION IS NOT AVAILABLE AT THIS TIME
This can happen when the National Wetlands Inventory (NWI) map service is unavailable, or for very large projects that intersect many wetland areas. Try again, or visit the NWI map to view wetlands at this location.

Data limitations

The Service's objective of mapping wetlands and deepwater habitats is to produce reconnaissance level information on the location, type and size of these resources. The maps are prepared from the analysis of high altitude imagery. Wetlands are identified based on vegetation, visible hydrology and geography. A margin of error is inherent in the use of imagery; thus, detailed on-the-ground inspection of any particular site may result in revision of the wetland boundaries or classification established through image analysis.

The accuracy of image interpretation depends on the quality of the imagery, the experience of the image analysts, the amount and quality of the collateral data and the amount of ground truth verification work conducted. Metadata should be consulted to determine the date of the source imagery used and any mapping problems.

Wetlands or other mapped features may have changed since the date of the imagery or field work. There may be occasional differences in polygon boundaries or classifications between the information depicted on the map and the actual conditions on site.

Data exclusions

Certain wetland habitats are excluded from the National mapping program because of the limitations of aerial imagery as the primary data source used to detect wetlands. These habitats include seagrasses or submerged aquatic vegetation that are found in the intertidal and subtidal zones of estuaries and nearshore coastal waters. Some deepwater reef communities (coral or tuberficid worm reefs) have also been excluded from the inventory. These habitats, because of their depth, go undetected by aerial imagery.

Data precautions

Federal, state, and local regulatory agencies with jurisdiction over wetlands may define and describe wetlands in a different manner than that used in this inventory. There is no attempt, in either the design or products of this inventory, to define the limits of proprietary jurisdiction of any Federal, state, or local government or to establish the geographical scope of the regulatory programs of government agencies. Persons intending to engage in activities involving modifications within or adjacent to wetland areas should seek the advice of appropriate federal, state, or local agencies concerning specified agency regulatory programs and proprietary jurisdictions that may affect such activities.

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Appendix C.
Noise and Vibration Report

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VASONA PUMP STATION UPGRADE NOISE STUDY

Town of Los Gatos
March 22, 2022
Revised April 20, 2023

ganddini

Traffic Engineering ● Transportation Planning ● Parking ● Noise & Vibration
Air Quality ● Global Climate Change ● Health Risk Assessment

VASONA PUMP STATION UPGRADE NOISE STUDY

Town of Los Gatos

March 22, 2022
Revised April 20, 2023

prepared by
Roma Stromberg, INCE, MS
Catherine Howe, MS

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Project No. 19437

TABLE OF CONTENTS

Appendices

List of Tables

List of Figures

EXECUTIVE SUMMARY

The purpose of this report is to provide an assessment of the noise impacts associated with development and operation of the proposed Vasona Pump Station Upgrade project and to identify mitigation measures that may be necessary to reduce those impacts. The noise issues related to the proposed land use and development have been evaluated in light of applicable federal, state and local policies, including those of the Town of Los Gatos.

Although this is a technical report, effort has been made to write the report clearly and concisely. A list of acronyms and glossary are provided in Appendix A and Appendix B of this report to assist the reader with technical terms related to noise analysis.

Proposed Project

The Vasona Pump Station is located at the intersection of Highway 17 and Highway 85 in the Town of Los Gatos, California (See Figure 1). It sits at the intersection of three pipelines: Central Pipeline (CP), Almaden Valley Pipeline, (AVP), and Rinconada Force Main (RFM). The project site consists of two parcels totaling approximately 5 acres of developed land located at Assessor Parcel Numbers (APNs) 424-440-30 and 424-080-76 (See Figure 1). Figure 1 shows both parcels. The existing staging area is located on the westernmost parcel (424-440-30) and the existing and proposed improvements are located on the easternmost parcel (424-08-076).

Valley Water proposes to construct Vasona Pump Station (VPS) Upgrade at an existing facility located in Los Gatos, California (Project Site). The proposed project will generate noise and groundborne vibration during project construction and operation. The extent of the noise and groundborne vibration and the level of significance associated with each is summarized below.

Construction Impacts

Construction noise sources are regulated within the Town of Los Gatos under Section 16.20.035 of the Town's Municipal Code which allows construction activities between the hours of 8:00 AM and 6:00 PM on weekdays and 9:00 AM to 4:00 PM on Saturdays as long as they meet at least one of the following noise limitations:

- No individual piece of equipment that exceeds a noise level of 85 dBA at a distance of 25 feet is utilized;
- Construction noise levels as measured at any point outside of the project site do not exceed 85 dBA.

Construction noise and construction staging noise was modeled at the project site property line shared with single family land uses to the north and at the property line of multiple family residential land uses that share a property line with the project construction staging area. As shown in Table 8, Noise associated with construction and staging are expected to reach up to 87 dBA at the single family residential land uses north of the project site and at the multiple family residential land uses located north of the proposed staging area. Implementation of at least one of the following mitigation measures (Noise Limitation 1 or Noise Limitation 2) which would make it feasible for the Town of Los Gatos to authorize a construction permit, will result in less than significant construction noise impacts.

<u>Construction Mitigation Measure for Compliance with Noise Limitation 1</u>

Prior to construction, Valley Water will provide evidence to the Town of Los Gatos that all equipment to be utilized on the project site or moved onto the staging area will not exceed 85 dBA at a distance of 25 feet. Evidence may consist of equipment specifications from the equipment manufacturer or actual noise measurement data performed in accordance with Town requirements for performing noise measurements (see Section 16.10.010, Definitions).

Construction Mitigation Measure for Compliance with Noise Limitation 2

In order to reduce construction noise to 85 dBA Leq at the property lines, an overall noise reduction of 2 dB is necessary and can be achieved by implementing the following measures.

a) In compliance with Town of Los Gatos Code construction activities, including deliveries to the project site, will be limited to between the hours of 8:00 a.m. to 6:00 p.m. weekdays, and 9:00 a.m. to 4:00 p.m. Saturdays unless otherwise authorized by the Town of Los Gatos.

b) Whenever possible, use only one piece of equipment at a time on the project site or on the staging area. One piece at each location will not exceed the Town noise standards.

c) If it is necessary to utilize equipment that is louder than 85 dB at a distance of 25 feet, solid sound barriers (1-inch thick plywood is acceptable) and/ or blankets with no holes or cracks with the exception of openings for access, which will placed in a manner that does not interrupt the solid barrier between the noise source and the affected sensitive receptor(s) that provide the necessary attenuation. For example, if the sound level of the equipment is 91 dBA Leq at a distance of 25 feet and is being utilized at a distance of 25 feet from the property line, the sound level would be 91 dBA and the sound barrier would need to provide at least 6 dBA Leq to meet the 85 dBA criteria; and if the same equipment is being used within 10 feet of the property line, the resulting noise level would be 100 dBA Leq and the barrier would need to provide at least 15 dB of sound reduction at that location. A general rule of thumb is that stationary noise sources double in sound level if you half the distance between the noise source and the noise receptor. The following formula can be used to determine the sound level at distance 2 (receptor) if the sound level at distance 1 (generator) is known.

$$dBA2 = dBA1 + 10\log10(D1/D2)\text{^}(2)$$

d) All stationary construction equipment will be oriented in such a manner so that emitted noise is directed away from the noise sensitive receptors that are nearest to the project site.

e) All construction equipment, fixed or mobile, will have properly operating and maintained mufflers.

f) Equipment will be shut off and not left to idle when not in use.

g) The contractor will locate equipment staging in areas that will create the greatest distance between construction-related noise/vibration sources and sensitive receptors nearest the project site during all project construction.

h) Jackhammers, pneumatic equipment, and all other portable stationary noise sources will be shielded using acoustic enclosures/or acoustical tents with required reductions per item a above.

i) The construction contractor will prohibit the use of music or sound amplification on the project site during construction.

j) For the duration of construction activities, the Valley Water Office of Communications will serve as the contact person should noise and/or vibration levels cause annoyance to local residents. A sign will be posted at the project site with the contact phone number.

Operational Impacts

Project operational noise may impact adjacent single family and multiple family residential land uses. Per Section 16.20.15 of the Town Code, no person shall cause, make, suffer or allow to be made by any machine, animal, device or any combination of same in a residential zone, a noise level more than six (6) dB above the noise level specified for that particular noise zone, as shown on the Noise Zone Map, during that particular time frame, at any point outside of the property plane.

Town of Los Gatos Noise Zone Maps are divided into three time periods (6:00 AM to 1 :00 PM, 1:00 PM to 10:00 PM, and 10:00 PM to 6:00 AM). Project operation would occur during all of these time periods. Noise associated with project operation may affect properties to the north of the project site. The noise zone maps show the criteria to be 55 dBA L_{eq} between the hours of 6:00 AM and 1:00 PM, 56 dBA L_{eq} between the hours of 1:00 PM and 10:00 PM and 48 dBA L_{eq} between the hours of 10:00 PM and 6:00 AM. However, there is a note on the noise zone maps that instructs that these criteria should be lowered by 5 dB if the noise is to occur on weekends or holidays which needs to be done because operational noise will occur on weekends and holidays. Furthermore, 6 dB needs to be added back to each criterion per Section 16.20.015, Exterior noise levels for residential zones (above). Finally, because operational noise will be continuous and not turned off and on at any particular time, it is most prudent to choose the lowest criteria as a design goal not to exceed, which is 48 dB-5 dB (weekend & holiday penalty) + 6 dB (per Section 16.20.015) = 49 dBA.

Activities at the existing staging area portion of the project site (APN 424-440-30) located south of existing multiple family land uses are expected to remain the same with implementation of the project. Existing noise levels at the northern property line were measured as ranging between 49.2 dBA Leq 1:00 AM in the morning and 64.7 at 11:00 AM in the morning. The primary noise source at this location is vehicle traffic associated with Highway 85 and Winchester Boulevard. Occasional noise events associated with the proposed project were secondary to vehicle noise.

Noise associated with the proposed improvements on parcel 424-08-076 was modeled using the SoundPLAN noise modeling software. However, exact sound specifications for proposed operational equipment including the proposed generator, pump house with four pumps and a transformer are not yet available. Instead, the SoundPLAN noise model was utilized to develop design criteria for proposed equipment in order to not exceed the most conservative Town standard of 49 dBA Leq. Modeling parameters and design criteria are listed below. Modeling results are shown in Figure 6 and modeling data is provided in Appendix E.

Pump House Design Criteria: Not to exceed 61 dBA Leq at northern wall of pump house building.

Generator Design Criteria: Not to exceed 64 dBA Leq at northern side of generator enclosure.

Transformer Design Criteria: Not to exceed 71 dBA Leq at eastern side of building/enclosure.

<u>Mitigation Measure – Project Operational Noise</u>

Concrete block walls, sound barriers, and/or mufflers will be utilized as part of the project design to ensure that the proposed backup generators, 600-hp pumps, and transformers do not exceed the applicable exterior noise standard of 51 dBA L_{eq} at property lines shared with residential land uses per Section 16.20.015 of the Town Code. An enclosed concrete block structure typically provides up to 20-30 dBA of interior to exterior sound reduction; a concrete wall that blocks the direct line of sight between a noise source and a receiver typically provides 15-20 dBA of reduction and mufflers can be custom designed to reduce up to 30 dB in sound levels, depending on the type of equipment.

Construction Vibration Impacts

Architectural Damage

The FTA identifies the threshold at which there is a risk to "architectural" damage to reinforced-concrete, steel or timber (no plaster) buildings as a peak particle velocity (PPV) of 0.5, at engineered concrete and masonry (no plaster) buildings as a PPV of 0.3, at non-engineered timber and masonry buildings as a PPV of 0.2 and at buildings extremely susceptible to vibration damage as a PPV of 0.1. Impacts would be significant if construction activities result in groundborne vibration of 0.2 PPV or higher at residential structures.

The nearest off-site structures are the single-family residential dwelling units to the north of the project site boundaries. The closest dwelling unit is located approximately 32 feet north of the proposed construction work area. At 32 feet, a vibratory roller would be expected to generate a PPV of 0.145 in/sec. Therefore, project construction would not cause architectural damage to the residential structures to the north. All other off-site structures are located further away. Temporary vibration levels associated with project construction would be less than significant.

Annoyance

The FTA identifies a level of 72 VdB as the level in which vibration becomes strongly perceptible to sensitive receptors. The threshold for annoyance due to vibration (72 VdB at offsite sensitive uses) could be exceeded at the residential land uses to the north of the project site and residents may be temporarily annoyed. However, the impact would only occur during daytime hours and will be temporary. This impact would be less than significant. No mitigation is required.

1. INTRODUCTION

PURPOSE AND OBJECTIVES

The purpose of this study is to describe the existing environmental noise setting within the Vasona Pump Station and the surrounding area. The noise setting has been discussed in light of applicable federal, state and local policies, including those of the Town of Los Gatos.

Although this is a technical report, effort has been made to write the report clearly and concisely. A list of acronyms and glossary are provided in Appendix A and Appendix B of this report to assist the reader with technical terms related to noise analysis.

PROJECT LOCATION

The Vasona Pump Station is located at the intersection of Highway 17 and Highway 85 in the Town of Los Gatos, California. It sits at the intersection of three pipelines: Central Pipeline (CP), Almaden Valley Pipeline, (AVP), and Rinconada Force Main (RFM). The project site consists of two parcels totaling approximately 5 acres of developed land located at Assessor Parcel Numbers (APNs) 424-440-30 and 424-080-76. A vicinity map showing the project location is provided on Figure 1.

PROJECT DESCRIPTION

Valley Water proposes to construct Vasona Pump Station (VPS) Upgrade at an existing facility located in Los Gatos, California (Project Site). This facility is owned and operated by the Santa Clara Valley Water District (District). The District intends to replace two 400 horsepower (hp) centrifugal pumps, two 200 hp horizontal centrifugal pumps and implement related equipment upgrades to: Motor control centers (MCCs), electrical distribution equipment and control systems, and telemetry equipment. There are no substantive changes proposed with the Project related to operations or maintenance, which require minimal activity on site. Operations are primarily implemented remotely, and maintenance involves testing the generator and checking the overall site for proper function approximately four times annually. The VPS upgrade is hereafter referred to as the "Project" and will occur within and adjacent to the existing pump building (Pump House) that has an above grade operating deck and subterranean (basement) pipe gallery within the existing concrete block building.

The Project would replace key electrical, mechanical, and control systems equipment (primarily pumps, valves and SCADA) and install supporting systems such as concrete equipment pads, equipment enclosures, overhead electrical busways, interconnecting electrical conduit, wire, and piping (both underground and above-grade). Installation of three new equipment enclosures is proposed for the standby generator, main switchboard, and controls and will be located on the south side of the existing Pump House, below the height of the existing Pump House, to provide a visual and noise buffer between the Project and the existing neighborhood to the north. Trenching is needed between these three new structures and the existing Pump House for electrical conduit and piping. The Project will add approximately 860 square feet of new impervious surface to the site. PG&E's transformer serving the Project Site will be replaced with a new utility transformer east of the existing Pump House and is not expected to result in disruption of electrical service within the neighborhood. No work is proposed within the creek or dissipater pond. Existing pumps will be replaced within the existing Pump House. A small existing generator inside of the Pump House will be replaced with a newer model for lighting. VPS operation will be maintained during construction. Temporary shutdown may occur with valve replacement or new pump discharge piping. Existing mechanical equipment will be replaced unless otherwise noted. The existing building exteriors and operations at the Project Site will remain unchanged, except for equipment replacements proposed within the Pump House. No seismic retrofit beyond what has already occurred at the Project Site will be needed. The Project will provide landing points for future connection to the microwave, T1, cable modem, or serial radio. The physical connection of the primary and back-up services will be performed by District staff. No changes to fire alarm or suppression are proposed.

Project plans will be reviewed and approved by the District's Water Utilities, Water Supply, Capitol Program Services, and Watershed Management Divisions.

Construction in the pump station yard includes the following: Replacement of five valves within existing vaults. Installation of a generator, switchgear, electrical building on concrete pads. Trenching for duct banks between equipment. Replace two flow meters in existing vaults. There will be a new service entrance and switchboard. The equipment in the yard will be outdoor rated pursuant to a prior agreement with the District. SCADA will be located in the existing control room within the Pump House. The current design will provide connection points for microwave, radio, cable and fiber; however, the actual connection between District systems and the new equipment will be provided by the District, not by the Contractor. PG&E transformer and switchboard will not have HVAC. The only equipment in the yard that will have HVAC is the electrical building.

- Excavation not exceeding 6-feet below grade will be required for concrete pads beneath electrical equipment as well as for the duct banks.
- Install and upsize a Service Entrance Switchboard within an HVAC temperature controlled, NEMA 3R weatherproof enclosure. Install adjustable frequency drive controllers and a universal power supply system within the Service Entrance Switchboard enclosure.
- Install new enclosure for standby generator and SCADA equipment including replacement of existing remote telemetry unit (RTU) and programmable logic controller (PLC) Control Panel Equipment.
- Perform short-circuit, protective device coordination and Arc Flash Study.
- Remove existing outdoor equipment storage located south of the Pump House.
- Install/replace system infrastructure including above and below grade cables switches, transceivers, patch panels, power supplies, racks, supports and enclosures. This includes trenching for new conduit.
- Replace/Install new PG&E Utility Transformer to upgrade existing service from 1,600A, 480V to 4,000A, 480V.
- Restore surface, cover and perimeter landscaping, throughout the Project Site to match existing.

Construction in the Pump House is to include:

- Remove two existing 200 hp and two existing 400 hp pumps
- Install four new 480-volt, 600 hp pumps
- Install pump motors and hardwire pump control panels
- Install a vibration monitoring system
- Replace 24 existing valves
- Remove the existing standby generator
- Remove existing Programable Logic Controller and Remote Terminal Unit Panels
- Replace existing small generator with newer model
- Replace the HVAC system

On-site construction activities are estimated to begin in the third quarter of 2023 and extend for approximately 12 months. Construction is planned to occur during typical business hours (Monday through Friday 8:00 AM to 5:00 PM). The Project will require careful sequencing of replacements and installations to avoid service interruption and to efficiently utilize the limited space around the Pump House and other existing structures at VPS. In addition, temporary fencing will be installed at the perimeter of construction areas within the interior of the Project Site to isolate construction from the Project from the ongoing operations of the VPS site.

Equipment and materials will be delivered via truck. Truck traffic is estimated to be four trucks per day during Phase 1 – Shut Down CPL and two trucks per day each during Phase 2 – Shut Down AVP and CPL, Phase 3 – Shut Down AVP, and Phase 4 – Shut Down AVP and CPL if needed. Trucks will enter the Project Site via Fremont Court or the alternative Winchester Circle. Construction materials staging will occur onsite. Construction traffic will be temporary and is estimated include a total of 68 trucks as follows:

- Imported fill 210 cubic yards (CY), 18 trucks

- Disposal of spoils 254 CY, 22 trucks
- Rebar 7,699 pounds (lbs), 1 truck
- Concrete 57 CY, 5 trucks
- Pumps, 2 trucks
- Valves, 6 trucks
- Rebar, 1 truck
- Miscellaneous electrical and mechanical equipment, 6 trucks
- Disposal of debris, 8 trucks
- Construction Crew, 12 to 20 cars daily

To perform the work, the following equipment and vehicles will be used to remove and replace equipment. This may include but is not limited to the following: Trucks/Trailers, Crane, Backhoe Loader, Compactor, Skid Steer Loader, Paving Equipment, Portable Pumps, Hand Equipment, Crew vehicles for transportation, and Trenching Equipment.

Long-term operation of VPS requires low levels of activity on site including equipment and building maintenance and catch basin and equipment monitoring and cleaning. The Project will not result in substantive changes to long-term operations and maintenance at VPS. Equipment will be operated and maintained in a manner similar with existing conditions involving low levels of activity following Project completion. No changes in staffing levels are anticipated.

The proposed site plan is shown in Figure 2.

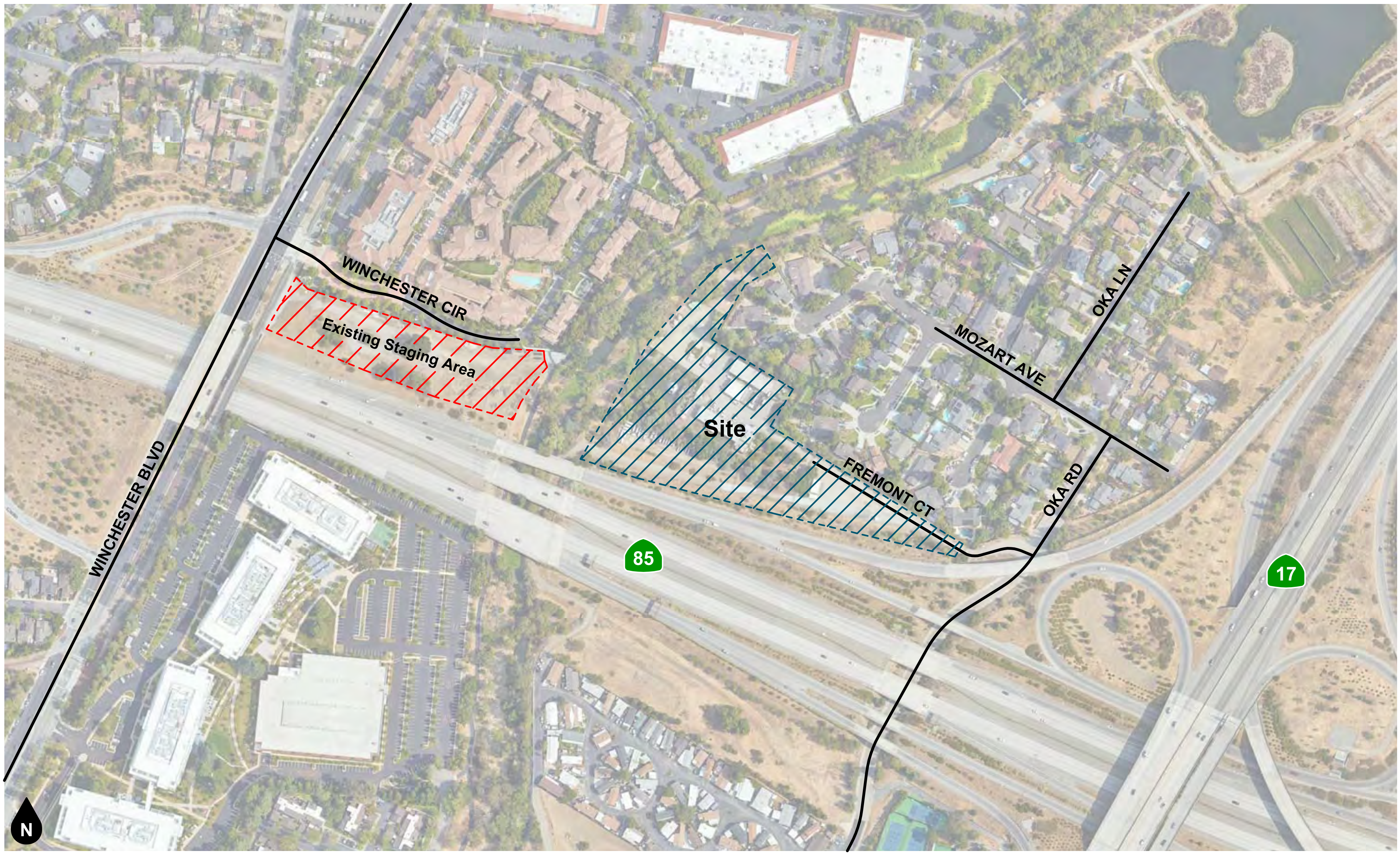


Figure 1
Project Location Map

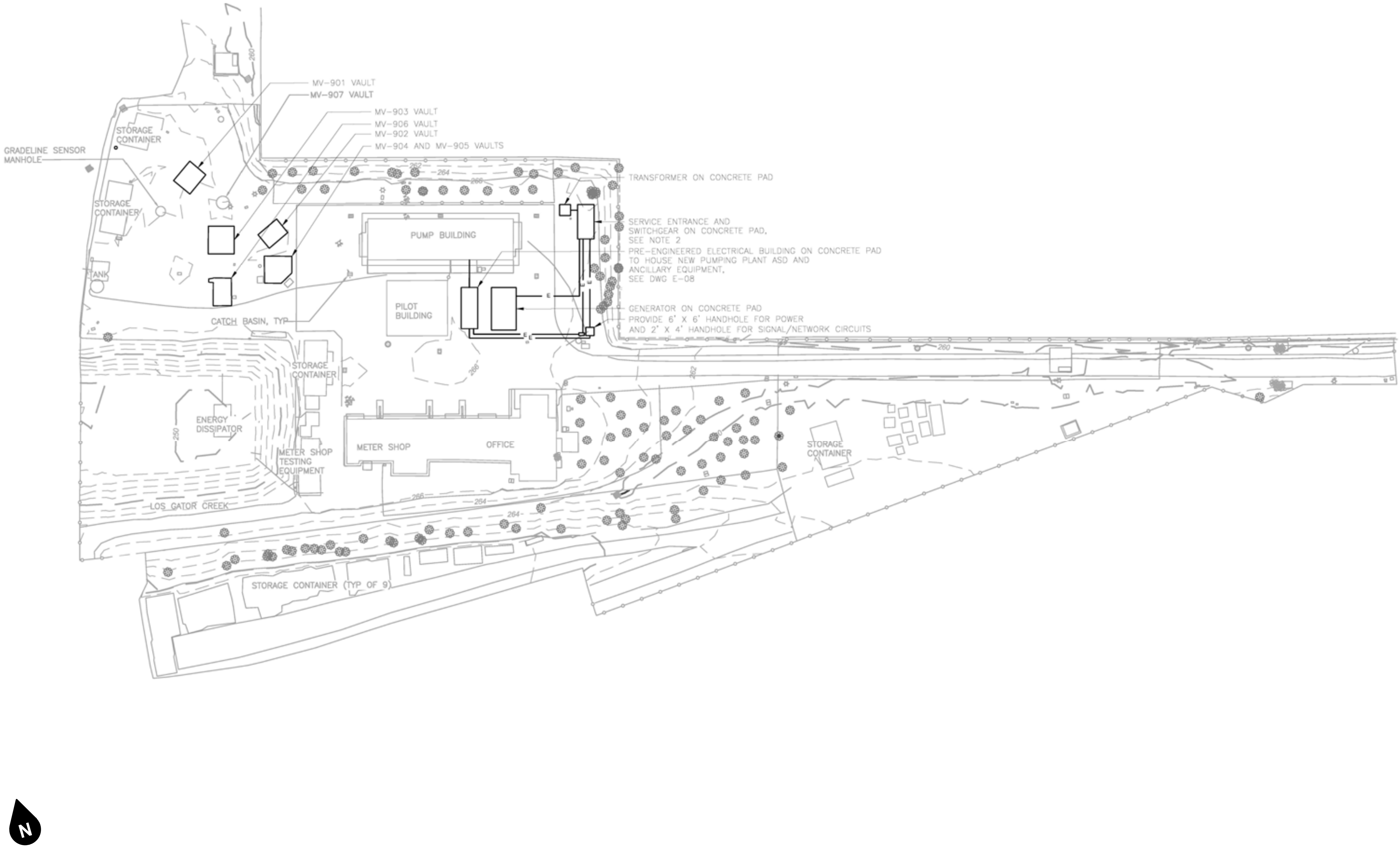


Figure 2
Site Plan

Vasona Pump Station Upgrade
Noise Impact Analysis
19437

2. NOISE AND VIBRATION FUNDAMENTALS

NOISE FUNDAMENTALS

Sound is a pressure wave created by a moving or vibrating source that travels through an elastic medium such as air. Noise is defined as unwanted or objectionable sound. The effects of noise on people can include general annoyance, interference with speech communication, sleep disturbance, and in extreme circumstances, hearing impairment.

Commonly used noise terms are presented in Appendix B. The unit of measurement used to describe a noise level is the decibel (dB). The human ear is not equally sensitive to all frequencies within the sound spectrum. Therefore, the "A-weighted" noise scale, which weights the frequencies to which humans are sensitive, is used for measurements. Noise levels using A-weighted measurements are written dB(A) or dBA.

From the noise source to the receiver, noise changes both in level and frequency spectrum. The most obvious is the decrease in noise as the distance from the source increases. The manner in which noise reduces with distance depends on whether the source is a point or line source as well as ground absorption, atmospheric effects and refraction, and shielding by natural and manmade features. Sound from point sources, such as air conditioning condensers, radiates uniformly outward as it travels away from the source in a spherical pattern. The noise drop-off rate associated with this geometric spreading is 6 dBA per each doubling of the distance (dBA/DD). Transportation noise sources such as roadways are typically analyzed as line sources, since at any given moment the receiver may be impacted by noise from multiple vehicles at various locations along the roadway. Because of the geometry of a line source, the noise drop-off rate associated with the geometric spreading of a line source is 3 dBA/DD.

Decibels are measured on a logarithmic scale, which quantifies sound intensity in a manner similar to the Richter scale used for earthquake magnitudes. Thus, a doubling of the energy of a noise source, such as a doubled traffic volume, would increase the noise levels by 3 dBA; halving of the energy would result in a 3 dBA decrease. Figure 3 shows the relationship of various noise levels to commonly experienced noise events.

Average noise levels over a period of minutes or hours are usually expressed as dBA Leq, or the equivalent noise level for that period of time. For example, $Leq_{(3\text{-hr})}$ would represent a 3-hour average. When no period is specified, a one-hour average is assumed.

Noise standards for land use compatibility are stated in terms of the Community Noise Equivalent Level (CNEL) and the Day-Night Average Noise Level (DNL). CNEL is a 24-hour weighted average measure of community noise. CNEL is obtained by adding five decibels to sound levels in the evening (7:00 PM to 10:00 PM), and by adding ten decibels to sound levels at night (10:00 PM to 7:00 AM). This weighting accounts for the increased human sensitivity to noise during the evening and nighttime hours. DNL is a very similar 24-hour average measure that weights only the nighttime hours.

It is widely accepted that the average healthy ear can barely perceive changes of 3 dBA; that a change of 5 dBA is readily perceptible, and that an increase (decrease) of 10 dBA sounds twice (half) as loud. This definition is recommended by the California Department of Transportation's Technical Noise Supplement to the Traffic Noise Analysis Protocol (2013).

VIBRATION FUNDAMENTALS

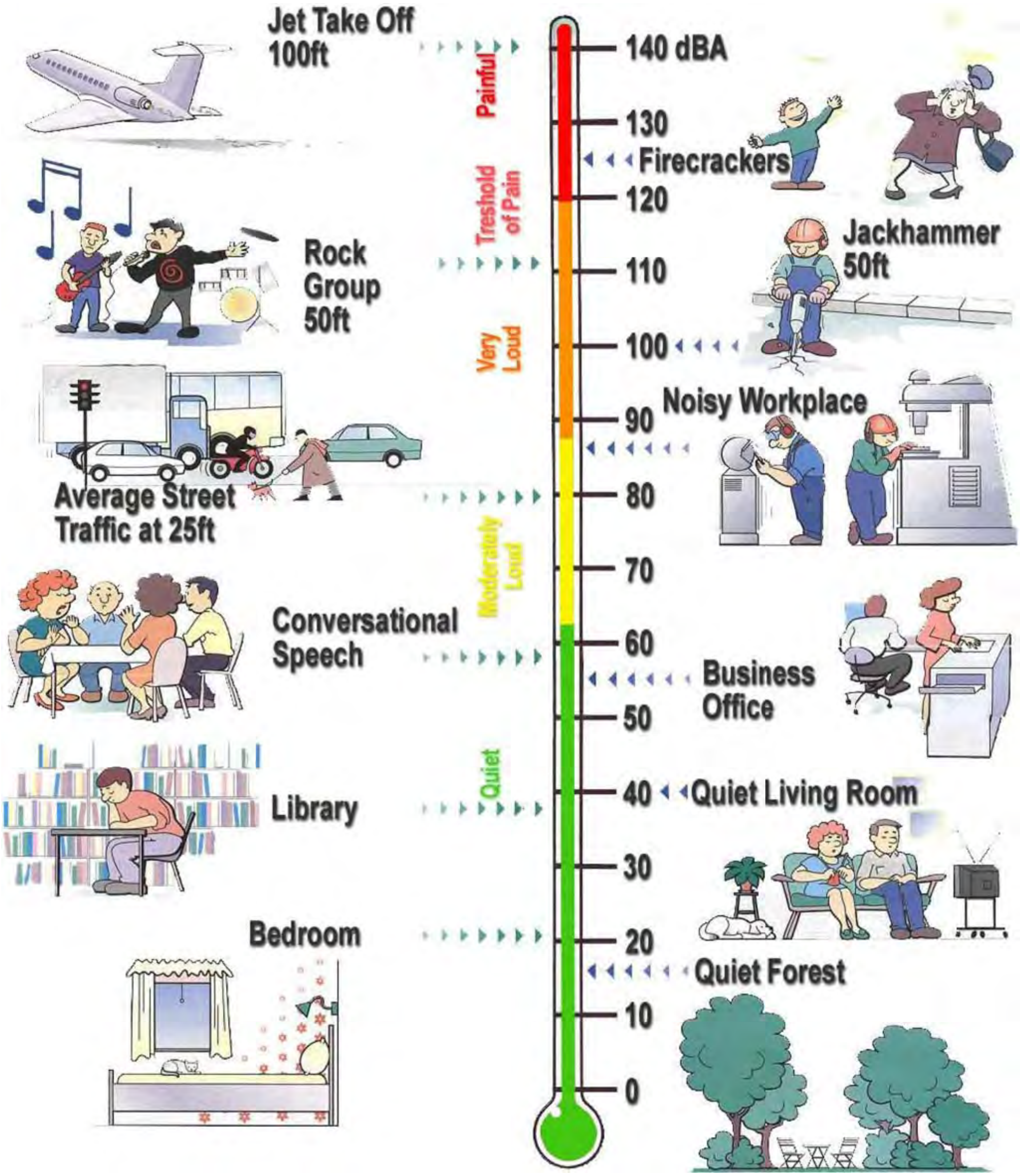
The way in which vibration is transmitted through the earth is called propagation. Propagation of earthborn vibrations is complicated and difficult to predict because of the endless variations in the soil through which waves travel. There are three main types of vibration propagation: surface, compression and shear waves. Surface waves, or Rayleigh waves, travel along the ground's surface. These waves carry most of their energy along an expanding circular wave front, similar to ripples produced by throwing a rock into a pool of water.

Compression waves, or P-waves, are body waves that carry their energy along an expanding spherical wave front. The particle motion in these waves is longitudinal (i.e., in a “push-pull” fashion). P-waves are analogous to airborne sound waves. Shear waves, or S-waves, are also body waves that carry energy along an expanding spherical wave front. However, unlike P-waves, the particle motion is transverse or “side-to-side and perpendicular to the direction of propagation”.

As vibration waves propagate from a source, the energy is spread over an ever-increasing area such that the energy level striking a given point is reduced with the distance from the energy source. This geometric spreading loss is inversely proportional to the square of the distance. Wave energy is also reduced with distance as a result of material damping in the form of internal friction, soil layering, and void spaces. The amount of attenuation provided by material damping varies with soil type and condition as well as the frequency of the wave.

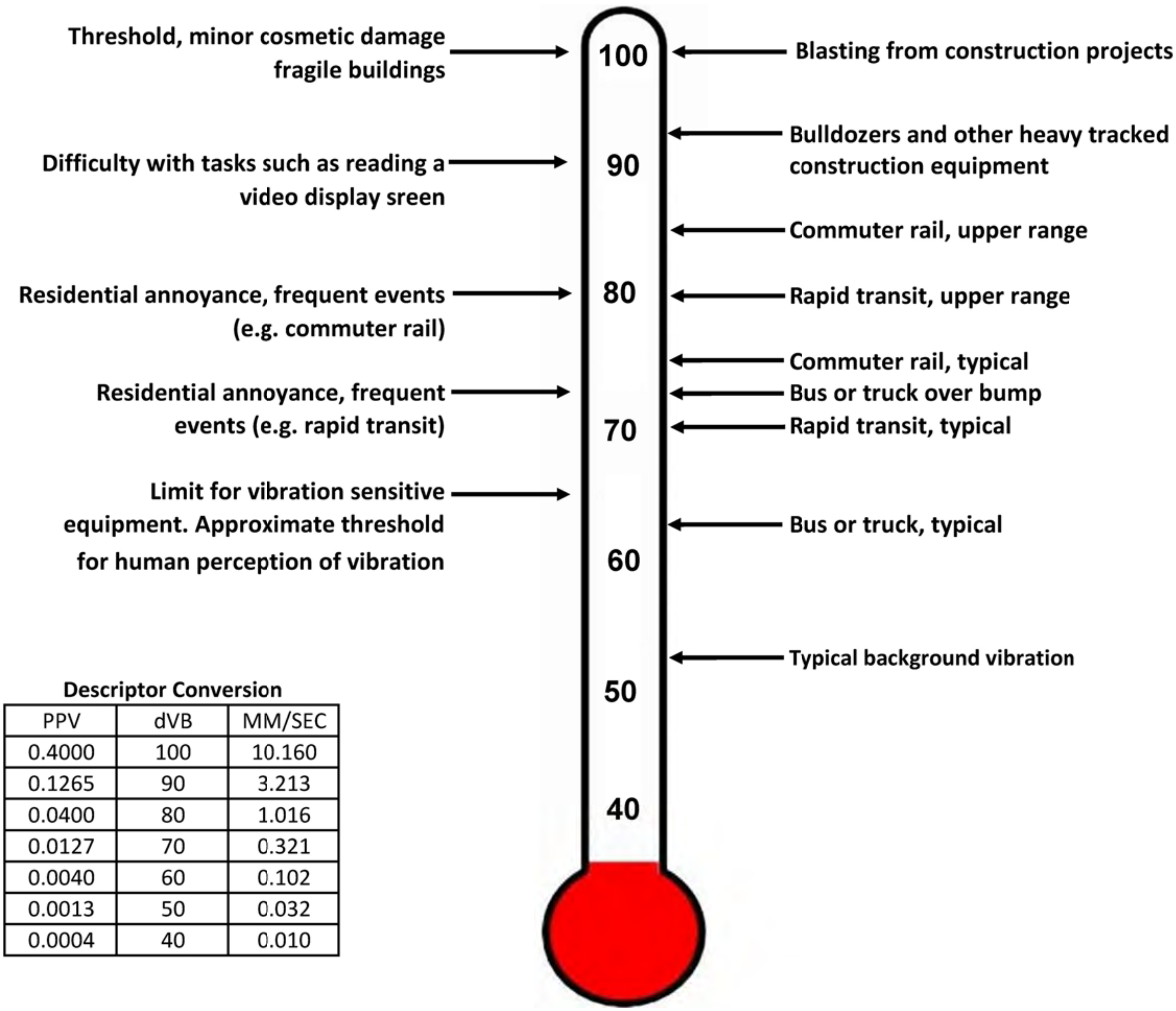
Vibration amplitudes are usually expressed as either peak particle velocity (PPV) or the root mean square (RMS) velocity. The PPV is defined as the maximum instantaneous peak of the vibration signal in inches per second. The RMS of a signal is the average of the squared amplitude of the signal in vibration decibels (VdB), ref one micro-inch per second. The Federal Railroad Administration uses the abbreviation “VdB” for vibration decibels to reduce the potential for confusion with sound decibel.

PPV is appropriate for evaluating the potential of building damage and VdB is commonly used to evaluate human response. Decibel notation acts to compress the range of numbers required in measuring vibration. Similar to the noise descriptors, Leq and L_{max} can be used to describe the average vibration and the maximum vibration level observed during a single vibration measurement interval. Figure 4 illustrates common vibration sources and the human and structural responses to ground-borne vibration. As shown in the figure, the threshold of perception for human response is approximately 65 VdB; however, human response to vibration is not usually substantial unless the vibration exceeds 70 VdB. Vibration tolerance limits for sensitive instruments such as magnetic resonance imaging (MRI) or electron microscopes could be much lower than the human vibration perception threshold.



Source: Bruel & Kjaer 2001

Figure 3
Weighted Sound Levels in Common Environments



Descriptor Conversion

PPV	dVB	MM/SEC
0.4000	100	10.160
0.1265	90	3.213
0.0400	80	1.016
0.0127	70	0.321
0.0040	60	0.102
0.0013	50	0.032
0.0004	40	0.010

Source: FRA, 2012. Federal Railroad Administration High-Speed Ground Transportation Noise and Vibration Impact Assessment. Office of Railroad Policy Development, Washington, D.C. DOT/FRA/ORD-12/15. September.

Figure 4
Typical Levels of Groundborne Vibration

3. EXISTING NOISE ENVIRONMENT

The existing predominant source of noise in the Town of Los Gatos is vehicular traffic. Roadways with the highest traffic volumes and speeds generally produce the highest noise levels, which, in the Town of Los Gatos, include State Route (SR) 9, SR 17 and SR 85. In addition, commercial and industrial land uses located near residential areas generate occasional noise impacts within the Town. The primary noise sources associated with these facilities are delivery trucks, air compressors, generators, outdoor loudspeakers, and gas venting. Other significant stationary noise sources in the Town include construction activities, street sweepers, and gas-powered leaf blowers. Airports, fire and police stations, hospitals, schools, and parks also generate occasional stationary noise impacts. Most of the noise impacts from these stationary sources are temporary and intermittent.[1]

EXISTING LAND USES AND SENSITIVE RECEPTORS

The project site is bordered by single-family residential uses to the north, Los Gatos Creek to the west, Fremont Court to the south (with State Route 85 further south), and Fremont Court to the east of the project site.

The State of California defines sensitive receptors as those land uses that require serenity or are otherwise adversely affected by noise events or conditions. Schools, libraries, churches, hospitals, single and multiple-family residential, including transient lodging, motels and hotel uses make up the majority of these areas. Furthermore, the Town of Los Gatos Draft 2040 General Plan states that noise sensitive land uses include those uses where noise exposure could result in health-related risks to individuals and/or places where quiet is an essential element of the intended use and include residences; schools; nursing homes; historic sites; cemeteries; parks, recreation, and open space areas; hospitals and care facilities; sensitive wildlife habitats, including the habitat of rare, threatened, or endangered species; hotels and other short-term lodging (e.g., bed and breakfasts, motels); places of worship; and libraries.

Existing sensitive land uses in the project area that may be affected by project noise include the existing single-family residential and multi-family residential uses located adjacent to the north of the project site boundaries.

AMBIENT NOISE MEASUREMENTS

An American National Standards Institute (ANSI Section S1.4 2014 Class 1) Larson Davis model LxT sound level meter was used to document existing ambient noise levels. In order to document existing ambient noise levels in the project area, two (2) long-term 24-hour noise measurement was also taken from January 18, 2022, to January 19, 2022. Field worksheets and noise measurement output data are included in Appendix C.

As shown in Figure 5, the noise meter was placed at the following locations:

- LTNM1: represents the existing noise environment of the single-family residential uses located to the north of the project site boundary (116 Mojonera Ct, Los Gatos). The noise meter was placed along the northern boundary of the project site just south of the residential uses along Fremont Court.

- LTNM2: represents the existing noise environment of the multi-family residential uses located to the north of the project site boundary (200 Winchester Cir, Los Gatos). The noise meter was placed along the northern boundary of the project site just south of Winchester Circle and the multi-family residential uses.

[1] Town of Los Gatos 2040 General Plan Draft Environmental Impact Report, Section 4.12 Noise.

Tables 1 and 2 provide a summary of the long-term noise measurements. Long-term hourly noise measurement ambient noise levels ranged from 40.9 to 58.6 dBA Leq (LTNM1) and 49.2 to 64.7 dBA Leq (LTNM2). The dominant noise source was vehicle traffic associated with SR 85, SR 17, Winchester Boulevard, and other surrounding roadways.

EXISTING PROJECT SITE OPERATIONS

The proposed project site is the renovation/upgrade of the Vasona Pump System (VPS), the existing use at the project site. The station currently has two 400 horsepower (hp) and two 200 hp, bottom-suction horizontal split-case pumps located in the existing pump building.

Table 1
Long-Term Noise Measurement Summary (LTNM1) (dBA)

24-Hour Ambient Noise[1,2]								
Hourly Measurements	Time Started	Leq	Lmax	Lmin	L(2)	L(8)	L(25)	L(50)
Overall Summary	12:00 PM	54.4	76.2	30.2	59.9	58.2	55.7	52.7
1	12:00 PM	54.6	65.3	47.0	58.6	57.2	55.5	54.0
2	1:00 PM	54.4	76.2	45.5	58.4	54.4	52.8	51.3
3	2:00 PM	53.6	71.1	46.0	58.3	55.1	53.5	52.1
4	3:00 PM	53.3	73.3	46.0	56.9	54.8	53.6	52.4
5	4:00 PM	55.1	68.7	46.6	58.8	57.3	55.8	54.1
6	5:00 PM	57.1	63.3	52.1	59.8	58.8	57.9	56.9
7	6:00 PM	57.0	67.0	51.6	60.4	58.9	57.7	56.5
8	7:00 PM	55.4	67.5	48.0	59.4	57.9	56.4	54.7
9	8:00 PM	54.2	71.1	46.0	57.4	55.9	54.4	53.1
10	9:00 PM	52.8	62.2	42.8	56.6	55.2	53.7	52.3
11	10:00 PM	50.7	63.2	44.8	54.6	53.0	51.5	50.1
12	11:00 PM	49.8	63.9	41.9	54.6	52.0	50.0	48.5
13	12:00 AM	47.0	65.8	34.4	52.1	49.7	47.5	45.5
14	1:00 AM	41.8	63.2	31.3	49.4	44.6	41.2	38.8
15	2:00 AM	40.9	56.9	30.2	49.8	43.9	40.4	37.8
16	3:00 AM	43.7	63.4	30.9	51.4	47.4	42.4	39.3
17	4:00 AM	47.4	58.8	31.8	53.9	51.6	48.6	45.3
18	5:00 AM	52.9	65.1	43.1	57.4	55.6	54.0	52.2
19	6:00 AM	57.2	70.6	48.4	61.7	59.8	57.8	56.1
20	7:00 AM	58.3	67.5	53.0	62.0	60.5	59.0	57.8
21	8:00 AM	58.6	70.5	53.9	61.5	60.2	59.1	58.2
22	9:00 AM	56.6	67.3	50.9	59.9	58.9	57.5	56.1
23	10:00 AM	54.9	66.2	47.9	58.7	57.1	55.8	54.4
24	11:00 AM	52.7	66.8	46.1	56.6	54.9	53.6	52.3

Notes:

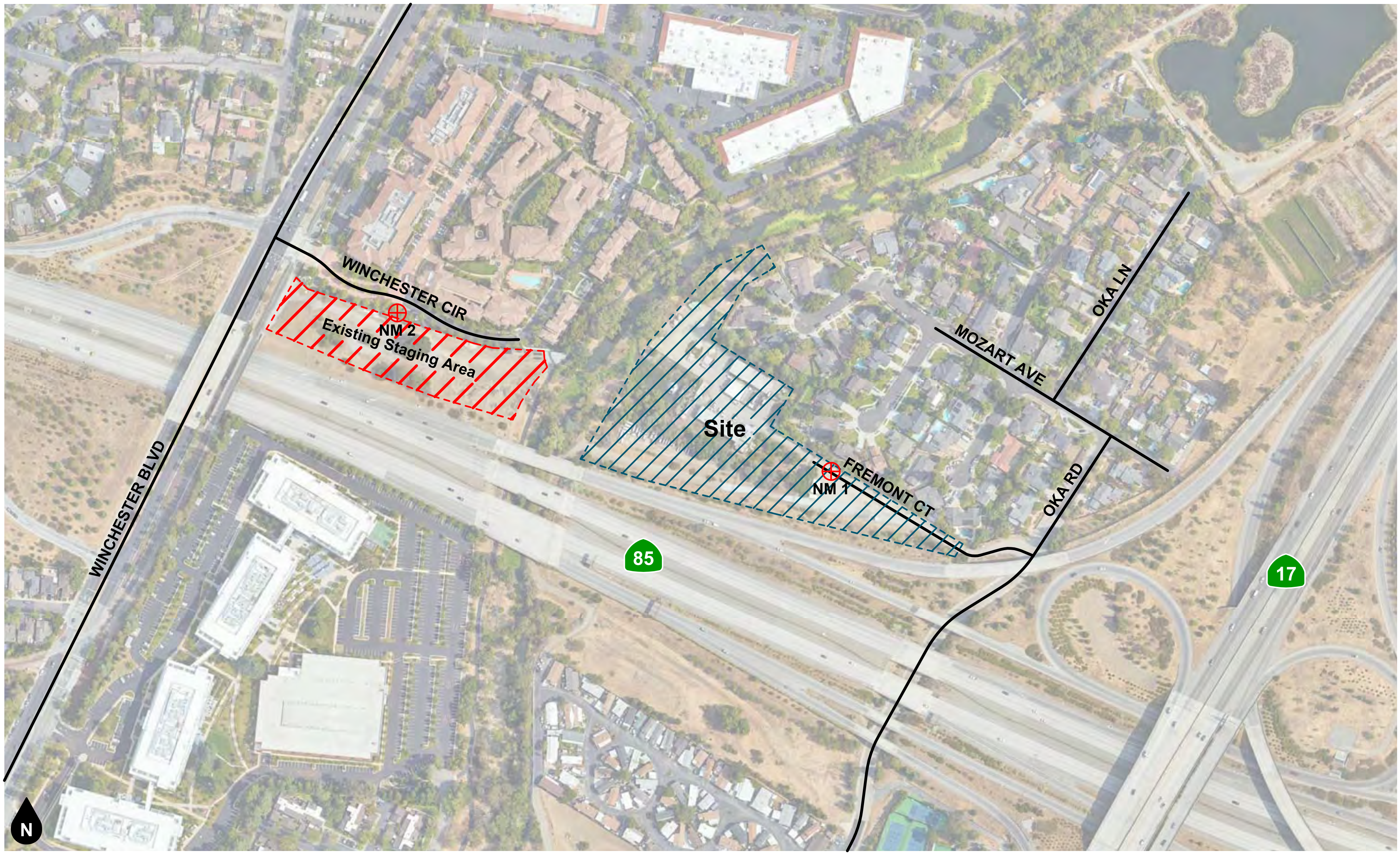
(1) See Figure 5 for noise measurement locations. Noise measurement was performed over a 24-hour duration.

(2) Noise measurement performed from January 18, 2022 to January 19, 2022.

Table 2
Long-Term Noise Measurement Summary (LTNM2) (dBA)

24-Hour Ambient Noise[1,2]								
Hourly Measurements	Time Started	Leq	Lmax	Lmin	L(2)	L(8)	L(25)	L(50)
Overall Summary	12:00 PM	61.6	83.7	34.7	65.9	64.6	63.0	61.3
1	12:00:00	62.1	72.7	55.0	65.0	63.6	62.8	61.9
2	13:00:00	49.2	79.6	55.2	66.0	63.5	62.4	61.5
3	14:00:00	49.3	83.7	55.2	65.6	64.0	63.0	62.1
4	15:00:00	53.6	77.0	56.7	65.8	64.1	63.1	62.3
5	16:00:00	53.9	76.4	57.7	65.4	64.2	63.3	62.5
6	17:00:00	55.8	69.7	60.0	65.3	64.5	63.7	63.1
7	18:00:00	57.3	72.9	58.4	65.8	65.1	64.3	63.5
8	19:00:00	59.2	70.9	55.6	64.3	63.3	62.3	61.3
9	20:00:00	60.1	70.8	55.5	64.0	62.8	61.8	60.8
10	21:00:00	60.9	72.0	48.7	63.5	62.3	61.1	59.7
11	22:00:00	61.1	71.9	50.5	63.4	61.7	60.1	58.7
12	23:00:00	61.3	72.4	47.8	61.7	60.0	58.2	56.7
13	00:00:00	61.5	64.1	41.6	59.8	57.4	55.1	52.6
14	01:00:00	62.2	62.6	36.3	56.7	54.1	50.1	44.9
15	02:00:00	62.3	63.3	34.9	56.6	54.1	50.5	43.7
16	03:00:00	62.7	77.5	34.7	59.5	56.3	52.9	47.6
17	04:00:00	62.8	69.3	35.5	61.6	59.5	57.3	54.7
18	05:00:00	62.8	73.0	47.3	64.6	63.5	61.9	60.5
19	06:00:00	63.3	69.2	55.4	66.4	65.4	64.5	63.6
20	07:00:00	63.6	79.0	59.5	67.2	66.4	65.5	64.4
21	08:00:00	63.7	72.7	60.8	66.4	65.9	65.3	64.6
22	09:00:00	63.8	71.0	58.3	66.4	65.4	64.4	63.5
23	10:00:00	64.7	72.6	56.4	64.9	64.0	63.0	62.1
24	11:00:00	64.7	69.0	54.3	64.3	63.1	62.0	61.0

Notes:
(1) See Figure 5 for noise measurement locations. Noise measurement was performed over a 24-hour duration.
(2) Noise measurement performed from January 18, 2022 to January 19, 2022.



Legend
Long-Term Noise Measurement Location
NM 1

Figure 5
Noise Measurement Location Map

4. REGULATORY SETTING

FEDERAL REGULATION

Federal Noise Control Act of 1972

The U.S. Environmental Protection Agency (EPA) Office of Noise Abatement and Control was originally established to coordinate federal noise control activities. After its inception, EPA's Office of Noise Abatement and Control issued the Federal Noise Control Act of 1972, establishing programs and guidelines to identify and address the effects of noise on public health, welfare, and the environment. In response, the EPA published Information on Levels of Environmental Noise Requisite to Protect Public Health and Welfare with an Adequate Margin of Safety (Levels of Environmental Noise). The Levels of Environmental Noise recommended that the Ldn should not exceed 55 dBA outdoors or 45 dBA indoors to prevent significant activity interference and annoyance in noise-sensitive areas.

In addition, the Levels of Environmental Noise identified five (5) dBA as an "adequate margin of safety" for a noise level increase relative to a baseline noise exposure level of 55 dBA Ldn (i.e., there would not be a noticeable increase in adverse community reaction with an increase of five dBA or less from this baseline level). The EPA did not promote these findings as universal standards or regulatory goals with mandatory applicability to all communities, but rather as advisory exposure levels below which there would be no risk to a community from any health or welfare effect of noise.

In 1981, EPA administrators determined that subjective issues such as noise would be better addressed at lower levels of government. Consequently, in 1982 responsibilities for regulating noise control policies were transferred to State and local governments. However, noise control guidelines and regulations contained in EPA rulings in prior years remain in place by designated Federal agencies, allowing more individualized control for specific issues by designated Federal, State, and local government agencies.

Federal Transit Administration

Ground-borne noise that accompanies the building vibration is usually perceptible only inside buildings and typically is only an issue at locations with subway or tunnel operations where there is no airborne noise path or for buildings with substantial sound insulation such as a recording studio.[2] As such, available guidelines from the Federal Transit Administration (FTA) are utilized to assess impacts due to ground-borne vibration. The FTA has adopted vibration standards that are used to evaluate potential building damage impacts related to construction activities. As shown in Table 3, the threshold at which there is a risk to "architectural" damage to non-engineered timber and masonry buildings is a peak particle velocity (PPV) of 0.2 in/sec, at engineered concrete and masonry buildings a PPV of 0.3 in/sec, and at reinforced-concrete, steel or timber buildings a PPV of 0.5 in/sec.

The FTA has also adopted standards associated with human annoyance for groundborne vibration impacts for the following three land-use categories:

(1) Vibration Category 1 – High Sensitivity,

(2) Vibration Category 2 – Residential, and

(3) Vibration Category 3 – Institutional.

The FTA defines Category 1 as buildings where vibration would interfere with operations within the building, including vibration-sensitive research and manufacturing facilities, hospitals with vibration-sensitive

[2] Federal Transit Administration, Transit Noise and Vibration Impact Assessment, May 2018, pp 108, 112.

equipment, and university research operations. Vibration-sensitive equipment includes, but is not limited to, electron microscopes, high-resolution lithographic equipment, and normal optical microscopes. Category 2 refers to all residential land uses and any buildings where people sleep, such as hotels and hospitals. Category 3 refers to institutional land uses such as schools, churches, other institutions, and quiet offices that do not have vibration-sensitive equipment, but still have the potential for activity interference. The vibration criteria associated with human annoyance for these three land-use categories are shown in Table 4. Table 4 shows that 72 VdB is the threshold for annoyance from groundborne vibration at sensitive receptors.

STATE REGULATIONS

California Environmental Quality Act

The California Environmental Quality Act (CEQA) is a California statute passed in 1970 and signed into law by then-Governor Ronald Reagan, shortly after the United States federal government passed the National Environmental Policy Act, to institute a statewide policy of environmental protection. CEQA does not directly regulate land uses, but instead requires state and local agencies within California to follow a protocol of analysis and public disclosure of environmental impacts of proposed projects and, in a departure from NEPA, adopt all feasible measures to mitigate those impacts. CEQA makes environmental protection a mandatory part of every California state and local agency's decision-making process. The Governor's Office of Planning and Research has published the CEQA Guidelines, which are administrative regulations governing implementation of CEQA. The CEQA Guidelines outline the requirements set forth in CEQA. An Environmental Checklist Form is provided in Appendix G of the CEQA Guidelines. It contains screening questions for twenty different environmental resources and is used by lead and responsible agencies to determine if the project has the potential to result in a significant impact, and whether or not the impacts can be mitigated. The lead agency uses this information to determine what kind of environmental review document is appropriate for the project, an exemption, a mitigated negative declaration or an environmental impact report. Checklist Questions pertaining to noise and vibration are as follows:

Would the proposed project result in:

a) Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies.

b) Generation of excessive groundborne vibration or groundborne noise levels?

c) For a project located within the vicinity of a private airstrip or an airport land use plan or where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?

LOCAL REGULATIONS

Town of Los Gatos General Plan

The Noise Element of the current Town of Los Gatos 2020 General Plan establishes goals, policies, and actions related to noise in the Town. The Town is currently in the process of updating their general plan. The 2040 Draft General Plan was made available for review in June 2021.

Town of Los Gatos Municipal Code

Chapter 16 of the Town's Municipal Code regulates environmental noise in the community. These guidelines are summarized below.

Section 16.20.010 Curfew noise disturbance.

a) No persons shall between the hours of 10:00 PM and 8:00 AM make, cause, suffer or permit to be made any noise disturbance which:

   1. Is made within one hundred (100) feet of any building or place regularly used for sleeping purposes; or
   2. Disturbs any person(s) within hearing distance of such noise.

b) No persons shall make, cause, suffer or permit to be made any noise or sounds which:

   1. Are unreasonably disturbing or physically annoying to people of ordinary sensitivity or which are so harsh or prolonged or unnatural or unusual in their use, time or place as to cause physical discomfort to a person(s); or
   2. Are not necessary in connection with an activity which is otherwise lawfully conducted.

Section 16.20.015 Exterior noise levels for residential zones.

No person shall cause, make, suffer or allow to be made by any machine, animal, device or any combination of same in a residential zone, a noise level more than six (6) dB above the noise level specified for that particular noise zone, as shown on the Noise Zone Map, during that particular time frame, at any point outside of the property plane.

Town of Los Gatos Noise Zone Maps, which are divided into three time periods, (6:00 AM to 1 :00 PM, 1:00 PM to 10:00 PM, and 10:00 PM to 6:00 AM). Project operation would occur during all of these time periods. Noise associated with project operation may affect properties to the north of the project site. The noise zone maps show the criteria to be 55 dBA L_{eq} between the hours of 6:00 AM and 1:00 PM, 56 dBA L_{eq} between the hours of 1:00 PM and 10:00 PM and 48 dBA L_{eq} between the hours of 10:00 PM and 6:00 AM. However, there is a note on the noise zone maps that instructs that these criteria should be lowered by 5 dB if the noise is to occur on weekends or holidays which needs to be done because operational noise will occur on weekends and holidays. Furthermore, 6 dB needs to be added back to each criterion per Section 16.20.015, Exterior noise levels for residential zones (above). Finally, because operational noise will be continuous and not turned off and on at any particular time, it is most prudent to choose the lowest criteria as a design goal not to exceed, which is 48-5 (weekend & holiday penalty) + 6 (per Section 16.20.015) = 49 dBA.

Section 16.20.035 Construction.

a) Notwithstanding any other provision of this chapter, between the hours of 8:00 AM to 6:00 PM weekdays, and 9:00 AM to 4:00 PM Saturdays, construction, alteration, or repair activities which are authorized by a valid Town permit or as otherwise allowed by Town permit, shall be allowed if they meet at least one of the following noise limitations:

   1. No individual piece of equipment shall produce a noise level exceeding eighty-five (85) dBA at twenty-five (25) feet. If the device is located within a structure on the property, the measurement shall be made at distances as close to twenty-five (25) feet from the device as possible.
   2. The noise level at any point outside of the property plane shall not exceed eighty-five (85) dBA.

b) The term "construction, alteration or repair activities" shall include any physical activity on the construction site or in the staging area, including the delivery of materials.

c) Construction, alteration or repair activities shall be prohibited outside those hours and on Sundays and legal holidays with the following exceptions:

1. A homeowner or tenant may personally perform construction, alteration, or repair activities on their own property between 8:00 AM to 8:00 PM Monday through Saturday and 9:00 AM to 5:00 PM on Sundays and holidays. All noise levels contained in Section 16.20.035(1) apply to this section.

2. If the Town Manager or designee finds evidence that an emergency exists that imperils the public safety, or immediate health and safety of the occupants, the Town Manager or designee may allow the construction or maintenance work to proceed during such hours as may be necessary for the duration of the emergency.

3. At any time before commencement of or during construction activity, the chief building official may modify the permitted hours of construction upon twenty-four (24) hours written notice to the contractor, applicant, developer, or owner. The chief building official can reduce or increase the allowable hours of construction activity. In approving modified hours, the chief building official may specifically designate and/or limit the activities permitted during the modified hours. If the hours of construction activity are modified, then the general contractor, applicant, developer, or owner may be asked to erect a sign at a prominent location on the construction site to advise subcontractors and material suppliers of the working hours. The contractor, owner or applicant shall immediately produce upon request any written order or permit from the chief building official pursuant to this section upon the request of any member of the public, the police or Town staff.

4. Violation of the allowed hours of construction activity, the chief building official's order, required signage or this section shall be a violation of this code.

Table 3
Construction Vibration Damage Criteria

Building/Structural Category	PPV, in/sec	Approximate Lv*
I. Reinforced-concrete, steel or timber (no plaster)	0.5	102
II. Engineered concrete and masonry (no plaster)	0.3	98
III. Non-engineered timber and masonry buildings	0.2	94
IV. Buildings extemely susceptible to vibration damage	0.1	90

Source: Federal Transit Administration (FTA), Transit Noise and Vibration Impact Assessment Manual (September 2018).
*RMS velocity in decibels, VdB re 1 micro-in/sec

Table 4
Ground-Borne Vibration (GBV) Impact Criteria for General Vibration Assessment

Land Use Category	GBV Impact Levels (VdB re 1 micro-inch/sec)		
	Frequent Events	Occasional Events	Infrequent Events
Category 1: Buildings where vibration would interfere with interior operations.	65 VdB*	65 VdB*	65 VdB*
Category 2: Residences and buildings where people normally sleep.	72 VdB	75 VdB	80 VdB
Category 3: Institutional land uses with primarily daytime use.	75 VdB	78 VdB	83 VdB

Notes:
Source:Federal Transit Administration (FTA), Transit Noise and Vibration Impact Assessment Manual (September 2018).
*This criterion limit is based on levels that are acceptable for most moderately sensitive equipment such as optical microscopes. For equipment that is more sensitive, a Detailed Vibration Analysis must be performed.

Table 5
Town of Los Gatos Outdoor Noise Limits

Land Use	Maximum L_{dn} Value	Maximum L_{eq} 24 Value
Residential	55 dBA	
Commercial		70 dBA
Industrial		70 dBA
Open Space		
Intensive (Developed Park)		55 dBA
Passive (Nature Park)		50 dBA
Hospital		55 dBA
Educational		55 dBA

Source: Town of Los Gatos 2020 General Plan Noise Element Table NOI-2.

5. ANALYTICAL METHODOLOGY AND MODEL PARAMETERS

This section discusses the analysis methodologies used to assess noise impacts.

CONSTRUCTION NOISE MODELING

Construction noise associated with the proposed project was calculated at the sensitive receptor locations, utilizing methodology presented in the Federal Transit Administration (FTA) Transit Noise and Vibration Impact Assessment Manual (2018) together with several key construction parameters including: distance to each sensitive receiver, equipment usage, percent usage factor, and baseline parameters for the project site. The equipment used to calculate the construction noise levels for each phase were based on the assumptions provided in the CalEEMod modeling in the project description provided by the applicant, Air Quality, Global Climate Change, and Energy Impact Analysis prepared for the proposed project (Ganddini Group, Inc., 2022), and Traffic Assessment prepared for the proposed project (Ganddini Group, Inc., 2022).

SOUNDPLAN NOISE MODEL

The SoundPLAN acoustical modeling software was utilized to model operational noise levels at the nearest sensitive receptors. SoundPLAN is capable of evaluating stationary noise sources (e.g., vehicle noise, parking lots, drive-thru menus, car wash equipment, vacuums, etc.) and much more. The SoundPLAN software utilizes algorithms (based on the inverse square law) to calculate noise level projections. The software allows the user to input specific noise sources, spectral content, sound barriers, building placement, topography, and sensitive receptor locations.

Exact sound specifications for proposed operational equipment including the proposed generator, pump house with four pumps and a transformer were not available at the time of this analysis. Instead of modeling data that is usually provided, SoundPLAN noise modeling was utilized to develop design criteria for proposed equipment in order to not exceed the applicable Town standard of 59 dBA Leq. Noise modeling input and outputs assumptions are provided in Appendix D for the operational analysis.

6. IMPACT ANALYSIS

This impact discussion analyzes the potential for noise and/or groundborne vibration impacts to cause the exposure of a person to, or generation of, noise levels in excess of established Town of Los Gatos standards related to construction, operation, and transportation noise related impacts to, or from, the proposed project.

CONSTRUCTION NOISE

On-site Construction Noise

Construction noise will vary depending on the construction process, type of equipment involved, location of the construction site with respect to sensitive receptors, the schedule proposed to carry out each task (e.g., hours and days of the week) and the duration of the construction work. A summary of noise level data for a variety of construction equipment compiled by the U.S. Department of Transportation is presented in Table 6. Typical operating cycles for these types of construction equipment may involve one or two minutes of full power operation followed by three to four minutes at lower power settings.

Section 16.20.035 of the Town of Los Gatos Code states that between the hours of 8:00 a.m. to 6:00 p.m. weekdays, and 9:00 a.m. to 4:00 p.m. Saturdays, construction, alteration, or repair activities that have been authorized by a valid Town permit or as otherwise allowed by Town permit, shall be allowed if they meet at least one of the following noise limitations:

(1) No individual piece of equipment shall produce a noise level exceeding eighty-five (85) dBA at twenty-five (25) feet. If the device is located within a structure on the property, the measurement shall be made at distances as close to twenty-five (25) feet from the device as possible.

(2) The noise level at any point outside of the property plane shall not exceed eighty-five (85) dBA.

Noise Limitation 1
As shown in Table 6, construction equipment to be utilized on the project site may exceed 85 dBA at a distance of 25 feet. Therefore, in order to use limitation number 1 presented above to acquire a permit from the Town for project construction activities, Valley Water needs to provide evidence that equipment chosen for use on the project site and/or to be stored at the staging area does not exceed 85 dBA at a distance of 25 feet.

Noise Limitation 2
In order to assess whether or not noise limitation number 2 listed above could be used to acquire a construction permit from the Town, construction noise associated with all of the proposed equipment operating simultaneously was calculated utilizing methodology presented in the Federal Transit Administration (FTA) Transit Noise and Vibration Impact Assessment Manual (2018) together with several key construction parameters including: distance to each sensitive receiver, equipment usage, percent usage factor, and baseline parameters for the project site.

Construction noise and construction staging noise was modeled at the project site property line shared with single family land uses located north of the project site and at the property line of multiple family residential land uses located north of the existing staging area. Construction and staging area noise is expected to reach up to 87 dBA at the single-family residential land uses north of the project site and up to 87 dBA at the multiple family residential land uses located north of the existing staging area. As proposed, construction noise levels will exceed the 85 dBA at any point outside of the property plane criteria associated with noise limitation number 2.

Implementation of at least one of the following mitigation measures (Noise Limitation 1 or Noise Limitation 2) which would make it feasible for the Town of Los Gatos to authorize a construction permit, will result in less than significant construction noise impacts.

Mitigation Measure for Compliance with Noise Limitation 1

Prior to construction, Valley Water will provide evidence to the Town of Los Gatos that all equipment to be utilized on the project site or moved onto the staging area will not exceed 85 dBA at a distance of 25 feet. Evidence may consist of equipment specifications, including model numbers, and serial numbers matching each piece of equipment, from the equipment manufacturer or actual noise measurement data performed in accordance with Town requirements for performing noise measurements (see Section 16.10.010, Definitions).

Mitigation Measure for Compliance with Noise Limitation 2

In order to reduce construction noise to 85 dBA Leq at the property lines, an overall noise reduction of 2 dB is necessary and can be achieved by implementing the following measures.

a) In compliance with Town of Los Gatos Code construction activities, including deliveries to the project site, will be limited to between the hours of 8:00 a.m. to 6:00 p.m. weekdays, and 9:00 a.m. to 4:00 p.m. Saturdays unless otherwise authorized by the Town of Los Gatos.

b) Whenever possible, use only one piece of equipment at a time on the project site or on the staging area. One piece at each location is acceptable.

c) If it is necessary to utilize equipment that is louder than 85 dB at a distance of 25 feet, solid sound barriers (1-inch thick plywood is acceptable) and/ or blankets with no holes or cracks with the exception of openings for access, which will placed in a manner that does not interrupt the solid barrier between the noise source and the affected sensitive receptor(s) that provide the necessary attenuation. For example, if the sound level of the equipment is 91 dBA Leq at a distance of 25 feet and is being utilized at a distance of 25 feet from the property line, the sound level would be 91 dBA and the sound barrier would need to provide at least 6 dBA Leq to meet the 85 dBA criteria; and if the same equipment is being used within 10 feet of the property line, the resulting noise level would be 100 dBA Leq and the barrier would need to provide at least 15 dB of sound reduction at that location. A general rule of thumb is that stationary noise sources double in sound level if you half the distance between the noise source and the noise receptor. The following formula can be used to determine the sound level at distance 2 (receptor) if you know the sound level at distance 1 (generator).

$$dBA2 = dBA1 + 10\log10(D1/D2)^\wedge(2)$$

d) All stationary construction equipment will be oriented in such a manner so that emitted noise is directed away from the noise sensitive receptors that are nearest to the project site.

e) All construction equipment, fixed or mobile, will have properly operating and maintained mufflers.

f) Equipment will be shut off and not left to idle when not in use.

g) The contractor will locate equipment staging in areas that will create the greatest distance between construction-related noise/vibration sources and sensitive receptors nearest the project site during all project construction.

h) Jackhammers, pneumatic equipment, and all other portable stationary noise sources will be shielded using acoustic enclosures/or acoustical tents with required reductions per item a above.

i) The construction contractor will prohibit the use of music or sound amplification on the project site during construction.

j) For the duration of construction activities, the Valley Water Office of Communications will serve as the contact person should noise and/or vibration levels cause annoyance to local residents. A sign will be posted at the project site with the contact phone number.

Off-Site Construction Activity

Construction truck trips would occur throughout the construction period. Given the project site's proximity to SR-85 and SR-17, it is anticipated that haul truck traffic would take the most direct route to the appropriate freeway ramps. The haul route will be reviewed and approved by the Town.

According to the FHWA, the traffic volumes need to be doubled in order to increase noise levels by 3 dBA CNEL.[3] As shown in Traffic Assessment completed for the proposed project (Ganddini Group, 2022), project construction is anticipated to generate up to 70 heavy truck/equipment and worker vehicles per day along off-site roadway segments and would not be anticipated to result in a doubling of traffic volumes. Off-site project generated construction vehicle trips would result in a negligible noise level increase. Therefore, noise impacts from off-site construction traffic would not expose persons to noise levels in excess of standards established by the Town and would be less than significant. No mitigation measures are required.

OPERATIONAL NOISE

Project operational noise may impact adjacent single family and multiple family residential land uses. Per Section 16.20.15 of the Town Code, no person shall cause, make, suffer or allow to be made by any machine, animal, device or any combination of same in a residential zone, a noise level more than six (6) dB above the noise level specified for that particular noise zone, as shown on the Noise Zone Map, during that particular time frame, at any point outside of the property plane.

Town of Los Gatos Noise Zone Maps, which are divided into three time periods, (6:00 AM to 1 :00 PM, 1:00 PM to 10:00 PM, and 10:00 PM to 6:00 AM). Project operation would occur during all of these time periods. Noise associated with project operation may affect properties to the north of the project site. The noise zone maps show the criteria to be 55 dBA L_{eq} between the hours of 6:00 AM and 1:00 PM, 56 dBA L_{eq} between the hours of 1:00 PM and 10:00 PM and 48 dBA L_{eq} between the hours of 10:00 PM and 6:00 AM. However, there is a note on the noise zone maps that instructs that these criteria should be lowered by 5 dB if the noise is to occur on weekends or holidays which needs to be done because operational noise will occur on weekends and holidays. Furthermore, 6 dB needs to be added back to each criterion per Section 16.20.015, Exterior noise levels for residential zones (above). Finally, because operational noise will be continuous and not turned off and on at any particular time, it is most prudent to choose the lowest criteria as a design goal not to exceed, which is 48 dB-5 dB (weekend & holiday penalty) + 6 dB (per Section 16.20.015) = 49 dBA.

Activities at the existing staging area portion of the project site (APN 424-440-30) located south of existing multiple family land uses are expected to remain the same with implementation of the project. Existing noise levels at the northern property line range between 49.2 dBA Leq 1:00 AM in the morning and 64.7 at 11:00 AM in the morning. The primary noise source at this location is vehicle traffic associated with Highway 85 and Winchester Boulevard. Occasional noise events associated with the proposed project were secondary to vehicle noise.

Noise associated with the proposed improvements on parcel 424-08-076 was modeled using the SoundPLAN noise modeling software. However, exact sound specifications for proposed operational equipment including the proposed generator, pump house with four pumps and a transformer are not yet available. Instead, the SoundPLAN noise model was utilized to develop design criteria for proposed equipment in order to not exceed the most conservative Town standard of 49 dBA Leq. Modeling parameters and design criteria are listed below. Modeling results are shown in Figure 6 and modeling data is provided in Appendix E.

[3] Federal Highway Administration, Highway Noise Prediction Model, December 1978.

Pump House Design Criteria: Not to exceed 61 dBA Leq at northern wall of pump house building.

Generator Design Criteria: Not to exceed 64 dBA Leq at northern side of generator enclosure.

Transformer Design Criteria: Not to exceed 71 dBA Leq at eastern side of building/enclosure.

The noise levels for each piece of equipment listed above can be interchanged, lowered, or raised between equipment as long as the final result does not exceed 59 dBA Leq at the property line. Equipment noise levels can be added using Formula 1, shown below. However, it is important to first calculate the noise level of each noise source at each receiver using the Inverse Square Law (Formula 2 shown below). To account for the effects of all of the noise sources, noise levels associated with all three noise sources should be added at each receptor separately taking into account the varying distances between the noise sources and receptors.

Formula 1:

$$\text{Total Sound Pressure Level (SPL)} = 10\log_{10}[10^{\,SPL1/10} + 10^{SPL2/10} + \ldots 10^{SPLn/10}]$$

For example, for three pieces of equipment with noise levels of 57, 48, and 47 dB would be 57 dB.

$$\text{Total Sound Pressure Level (SPL)} = 10\log_{10}[10^{\,57/10} + 10^{48/10} + \ldots 10^{47/10}] = 57 \text{ dB}$$

Formula 2:

$$dBA2 = dBA1 + 10log10(D1/D2)^\wedge(2)$$

For example, the following formula projects a noise source from 50 feet to 100 feet.
:

$$dBA\ 2\ (100\ ft) = dBA1\ (50\ feet) + 10log10(D100/D50)^\wedge(2)$$

Mitigation Measure

Concrete block walls, sound barriers, and/or mufflers will be utilized as part of the project design to ensure that the proposed backup generators, 600-hp pumps, and transformers do not exceed the applicable exterior noise standard of 49 dBA L_{eq} at property lines shared with residential land uses per Section 16.20.015 of the Town Code. An enclosed concrete block structure typically provides up to 20-30 dBA of interior to exterior sound reduction; a concrete wall that blocks the direct line of sight between a noise source and a receiver typically provides 15-20 dBA of reduction and mufflers can be custom designed to reduce up to 30 dB in sound levels, depending on the type of equipment.

GROUNDBORNE VIBRATION

There are several types of construction equipment that can cause vibration levels high enough to annoy persons in the vicinity and/or result in architectural or structural damage to nearby structures and improvements. For example, as shown in Table 8, a vibratory roller could generate up to 0.21 PPV at a distance of 25 feet; and operation of a large bulldozer (0.089 PPV) at a distance of 25 feet (two of the most vibratory pieces of construction equipment). Groundborne vibration at sensitive receptors associated with this equipment would drop off as the equipment moves away. For example, as the vibratory roller moves further than 100 feet from the sensitive receptors, the vibration associated with it would drop below 0.0026 PPV. It should be noted that these vibration levels are reference levels and may vary slightly depending upon soil type and specific usage of each piece of equipment.

Structural Impacts

Vibration generated by construction activity generally has the potential to damage structures. This damage could be structural damage, such as cracking of floor slabs, foundations, columns, beams, or wells, or cosmetic architectural damage, such as cracked plaster, stucco, or tile. (California Department of Transportation, 2020)

As stated previously, for conservative purposes, this construction vibration analysis compares the estimated vibration levels generated during construction of the project to the 0.2 in/sec PPV significance threshold for non-engineered timber and masonry buildings.

Compactors and/or vibratory rollers are proposed to be utilized during construction. Other construction equipment will not result in noticeable groundborne vibration. None of the operational equipment proposed would result in noticeable groundborne vibration.

The nearest off-site structures are the single-family residential dwelling units to the north of the project site boundaries. The closest dwelling unit is located approximately 32 feet north of the proposed construction work area. At 32 feet, a vibratory roller would be expected to generate a PPV of 0.145 in/sec. Therefore, project construction would not cause architectural damage to the residential structures to the north. All other off-site structures are located further away.

Therefore, impacts from vibration related damage would be less than significant. Vibration worksheets are provided in Appendix F.

Annoyance to Persons

Construction

The primary effect of perceptible vibration is often a concern. However, secondary effects, such as the rattling of a china cabinet, can also occur, even when vibration levels are well below perception. Any effect (primary perceptible vibration, secondary effects, or a combination of the two) can lead to annoyance. The degree to which a person is annoyed depends on the activity in which they are participating at the time of the disturbance. For example, someone sleeping or reading will be more sensitive than someone who is running on a treadmill. Reoccurring primary and secondary vibration effects often lead people to believe that the vibration is damaging their home, although vibration levels are well below minimum thresholds for damage potential. (California Department of Transportation, 2020)

As stated previously, for conservative purposes, this vibration analysis for potential human annoyance compares the estimated vibration levels generated during construction of the project to the 72 VdB significance threshold for off-site sensitive uses for “Frequent Event.” A vibratory roller could generate up to 72 VdB at a distance of 136 feet.

The closest vibration-sensitive receptors to the project site include the single-family residential dwelling units located as close as approximately 32 feet to the north of the construction work area boundaries. At 32 feet, a vibratory roller could generate a vibration level of approximately 91 VdB.

Therefore, the threshold for annoyance (72 VdB at offsite sensitive uses) could be exceeded at the residential land uses to the north of the proposed construction work area. Nearby residents may be temporarily annoyed by groundborne vibration during the use of vibratory equipment during site preparation. However, the impact would only occur during daytime hours and will be temporary. This impact would be less than significant. No mitigation is required.

Table 6 (1 of 2)
CA/T Equipment Noise Emissions and Acoustical Usage Factor Database

Equipment Description	Impact Device?	Acoustical Use Factor (%)	Spec. Lmax @ 50ft (dBA, slow)	Actual Measured Lmax @ 50ft (dBA, slow)	No. of Actual Data Samples (Count)
All Other Equipment > 5 HP	No	50	85	-N/A-	0
Auger Drill Rig	No	20	85	84	36
Backhoe	No	40	80	78	372
Bar Bender	No	20	80	-N/A-	0
Blasting	Yes	-N/A-	94	-N/A-	0
Boring Jack Power Unit	No	50	80	83	1
Chain Saw	No	20	85	84	46
Clam Shovel (dropping)	Yes	20	93	87	4
Compactor (ground)	No	20	80	83	57
Compressor (air)	No	40	80	78	18
Concrete Batch Plant	No	15	83	-N/A-	0
Concrete Mixer Truck	No	40	85	79	40
Concrete Pump Truck	No	20	82	81	30
Concrete Saw	No	20	90	90	55
Crane	No	16	85	81	405
Dozer	No	40	85	82	55
Drill Rig Truck	No	20	84	79	22
Drum Mixer	No	50	80	80	1
Dump Truck	No	40	84	76	31
Excavator	No	40	85	81	170
Flat Bed Truck	No	40	84	74	4
Forklift[2,3]	No	50	n/a	61	n/a
Front End Loader	No	40	80	79	96
Generator	No	50	82	81	19
Generator (<25KVA, VMS signs)	No	50	70	73	74
Gradall	No	40	85	83	70
Grader	No	40	85	-N/A-	0
Grapple (on backhoe)	No	40	85	87	1
Horizontal Boring Hydr. Jack	No	25	80	82	6
Hydra Break Ram	Yes	10	90	-N/A-	0
Impact Pile Driver	Yes	20	95	101	11
Jackhammer	Yes	20	85	89	133
Man Lift	No	20	85	75	23
Mounted Impact hammer (hoe ram)	Yes	20	90	90	212
Pavement Scarafier	No	20	85	90	2
Paver	No	50	85	77	9
Pickup Truck	No	50	85	77	9
Paving Equipment	No	50	85	77	9
Pneumatic Tools	No	50	85	85	90

Table 6 (2 of 2)
CA/T Equipment Noise Emissions and Acoustical Usage Factor Database

Equipment Description	Impact Device?	Acoustical Use Factor (%)	Spec. Lmax @ 50ft (dBA, slow)	Actual Measured Lmax @ 50ft (dBA, slow)	No. of Actual Data Samples (Count)
Pumps	No	50	77	81	17
Refrigerator Unit	No	100	82	73	3
Rivit Buster/chipping gun	Yes	20	85	79	19
Rock Drill	No	20	85	81	3
Roller	No	20	85	80	16
Sand Blasting (Single Nozzle)	No	20	85	96	9
Scraper	No	40	85	84	12
Shears (on backhoe)	No	40	85	96	5
Slurry Plant	No	100	78	78	1
Slurry Trenching Machine	No	50	82	80	75
Soil Mix Drill Rig	No	50	80	-N/A-	0
Tractor	No	40	84	-N/A-	0
Vacuum Excavator (Vac-truck)	No	40	85	85	149
Vacuum Street Sweeper	No	10	80	82	19
Ventilation Fan	No	100	85	79	13
Vibrating Hopper	No	50	85	87	1
Vibratory Concrete Mixer	No	20	80	80	1
Vibratory Pile Driver	No	20	95	101	44
Warning Horn	No	5	85	83	12
Welder/Torch	No	40	73	74	5

Notes:

(1) Source: FHWA Roadway Construction Noise Model User's Guide January 2006.

(2) Warehouse & Forklift Noise Exposure - NoiseTesting.info Carl Stautins, November 4, 2014
http://www.noisetesting.info/blog/carl-strautins/page-3/

(3) Data provided Leq as measured at the operator. Sound Level at 50 feet is calculated using Inverse Square Law.

Table 7
Noise Limitation 1 - Analysis
Construction Equipment Noise Levels at 25 Feet (dBA, Lmax)

Construction Equipment	Construction Noise Levels (dBA Leq)[1]	Exceeds 85 dB Standard?[2]
Tractors/Loaders/Backhoes	86	No
Cranes	81	No
Paving Equipment	84	No
Compactor	82	No
Skid-Steer Loader	81	No
Hand Equipment	88	No
Portable Pump	84	No
Total	93	No

Notes:
(1) See Table 6.
(2) Los Gatos Town Code Section 16.20.035 states that construction must meet at least one of the following: no individual piece of equipment shall produce a noise level exceeding 85 dBA at twenty-five (25) feet (Noise Limitation #1) or the noise level at any point outside the property plane shall not exceed 85 dBA (noise Limitation #2).

Table 8
Noise Limitation #2 Analysis
Construction Equipment Noise Levels at Northern Property Line (dBA, Leq)

Receptor Location	Construction Noise Levels (dBA Leq)[1]	Needed Sound Reduction (dB)	Construction Noise Levels With Mitigation Measures (dBA Leq)	Exceeds 85 dB Standard?[3]
Single Family North of Project Site (Property Line)	87	2	85	No
Multiple Family North of Staging Area	87	2	85	No

Notes:

(1) Construction modeling is providing in Appendix. Cell content represents concurrent construction noise levels at project site and staging area.

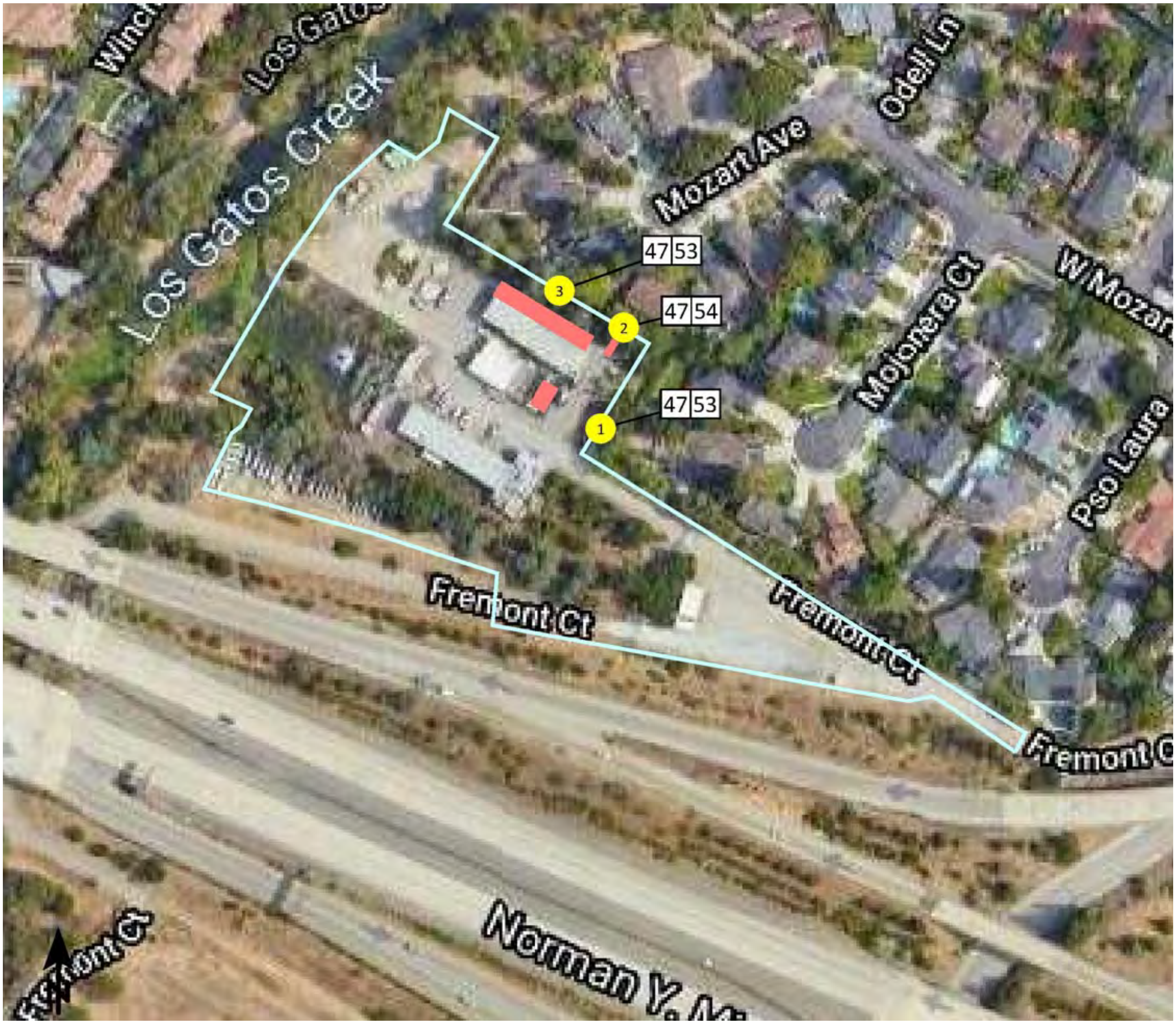
(2) Mitigation can include but are not limited to the use of alternative equipment, muffled equipment, and temporary barriers.

(3) Los Gatos Town Code Section 16.20.035 states that construction must meet at least one of the following: no individual piece of equipment shall produce a noise level exceeding 85 dBA at twenty-five (25) feet (Noise Limitation #1) or the noise level at any point outside the property plane shall not exceed 85 dBA (noise Limitation #2).

Table 9
Construction Equipment Vibration Source Levels

Equipment		PPV at 25 ft, in/sec	Approximate Lv* at 25 ft
Pile Driver (impact)	upper range	1.518	112
	typical	0.644	104
Pile Driver (sonic)	upper range	0.734	105
	typical	0.170	93
Clam Shovel Drop (slurry wall)		0.202	94
Hydromill (slurry wall)	in soil	0.008	66
	in rock	0.017	75
Vibratory Roller		0.210	94
Hoe Ram		0.089	87
Large Bulldozer		0.089	87
Caisson Drilling		0.089	87
Loaded Trucks		0.076	86
Jackhammer		0.035	79
Small Bulldozer		0.003	58

Source: Federal Transit Administration: Transit Noise and Vibration Impact Assessment Manual, 2018.
*RMS velocity in decibels, VdB re 1 micro-in/sec



Pump House = 54 Lw, 48 dBA Leq @ 50 Ft
Generator = 60 Lw, 57 dBA Leq @ 50 Ft
Transformer 60 Lw, 47 dBA Leq @ 50 Ft

Signs and symbols

Property Line
Receiver
Area source

Modeled Noise Levels Leq/Ldn

Figure 6
Operational Noise Levels

7. CEQA IMPACT ANALYSIS

INTRODUCTION

The California Environmental Quality Act (CEQA) is a California statute passed in 1970 and signed into law by then-Governor Ronald Reagan, shortly after the United States federal government passed the National Environmental Policy Act, to institute a statewide policy of environmental protection. CEQA does not directly regulate land uses, but instead requires state and local agencies within California to follow a protocol of analysis and public disclosure of environmental impacts of proposed projects and, in a departure from NEPA, adopt all feasible measures to mitigate those impacts. CEQA makes environmental protection a mandatory part of every California state and local agency's decision-making process. The Governor's Office of Planning and Research has published the CEQA Guidelines, which are administrative regulations governing implementation of CEQA. The CEQA Guidelines outline the requirements set forth in CEQA. An Environmental Checklist Form is provided in Appendix G of the CEQA Guidelines. It contains screening questions for twenty different environmental resources and is used by lead and responsible agencies to determine if the project has the potential to result in a significant impact, and whether or not the impacts can be mitigated. The lead agency uses this information to determine what kind of environmental review document is appropriate for the project, an exemption, a mitigated negative declaration or an environmental impact report. For the ease of the environmental consultants and the agency reviewers, the following section provides answers to the applicable checklist questions.

APPENDIX G OF THE STATE CEQA GUIDELINES

CEQA Thresholds

The California Environmental Quality Act Guidelines (Appendix G) establishes thresholds for noise impact analyses. The following lists the Appendix G Checklist Thresholds.

Would the project result in:

a) Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?

Substantial increases in ambient noise levels are usually associated with project construction noise (temporary) and project operational noise (permanent).

Construction Noise (temporary)

Construction noise will vary depending on the construction process, type of equipment involved, location of the construction site with respect to sensitive receptors, the schedule proposed to carry out each task (e.g., hours and days of the week) and the duration of the construction work. A summary of noise level data for a variety of construction equipment compiled by the U.S. Department of Transportation is presented in Table 6. Typical operating cycles for these types of construction equipment may involve one or two minutes of full power operation followed by three to four minutes at lower power settings.

Section 16.20.035 of the Town of Los Gatos Code states that between the hours of 8:00 a.m. to 6:00 p.m. weekdays, and 9:00 a.m. to 4:00 p.m. Saturdays, construction, alteration, or repair activities that have been authorized by a valid Town permit or as otherwise allowed by Town permit, shall be allowed if they meet at least one of the following noise limitations:

(1) No individual piece of equipment shall produce a noise level exceeding eighty-five (85) dBA at twenty-five (25) feet. If the device is located within a structure on the property, the measurement shall be made at distances as close to twenty-five (25) feet from the device as possible.

(2) The noise level at any point outside of the property plane shall not exceed eighty-five (85) dBA.

Noise Limitation 1
As shown in Table 6, construction equipment to be utilized on the project site may exceed 85 dBA at a distance of 25 feet. Therefore, in order to use limitation number 1 presented above to acquire a permit from the Town for project construction activities, Valley Water needs to provide evidence that equipment chosen for use on the project site and/or to be stored at the staging area does not exceed 85 dBA at a distance of 25 feet.

Noise Limitation 2
In order to assess whether or not noise limitation number 2 listed above could be used to acquire a construction permit from the Town, construction noise associated with all of the proposed equipment operating simultaneously was calculated utilizing methodology presented in the Federal Transit Administration (FTA) Transit Noise and Vibration Impact Assessment Manual (2018) together with several key construction parameters including: distance to each sensitive receiver, equipment usage, percent usage factor, and baseline parameters for the project site.

Construction noise and construction staging noise was modeled at the project site property line shared with single family land uses located north of the project site and at the property line of multiple family residential land uses located north of the existing staging area. Construction and staging area noise is expected to reach up to 87 dBA at the single-family residential land uses north of the project site and up to 87 dBA at the multiple family residential land uses located north of the existing staging area. As proposed, construction noise levels will exceed the 85 dBA at any point outside of the property plane criteria associated with noise limitation number 2.

Implementation of at least one of the following mitigation measures (Noise Limitation 1 or Noise Limitation 2) which would make it feasible for the Town of Los Gatos to authorize a construction permit, will result in less than significant construction noise impacts.

Mitigation Measure for Compliance with Noise Limitation 1

Prior to construction, Valley Water will provide evidence to the Town of Los Gatos that all equipment to be utilized on the project site or moved onto the staging area will not exceed 85 dBA at a distance of 25 feet. Evidence may consist of equipment specifications, including model numbers, and serial numbers matching each piece of equipment, from the equipment manufacturer or actual noise measurement data performed in accordance with Town requirements for performing noise measurements (see Section 16.10.010, Definitions).

Mitigation Measure for Compliance with Noise Limitation 2

In order to reduce construction noise to 85 dBA Leq at the property lines, an overall noise reduction of 2 dB is necessary and can be achieved by implementing the following measures.

a) In compliance with Town of Los Gatos Code construction activities, including deliveries to the project site, will be limited to between the hours of 8:00 a.m. to 6:00 p.m. weekdays, and 9:00 a.m. to 4:00 p.m. Saturdays unless otherwise authorized by the Town of Los Gatos.

b) Whenever possible, use only one piece of equipment at a time on the project site or on the staging area. One piece at each location is acceptable.

c) If it is necessary to utilize equipment that is louder than 85 dB at a distance of 25 feet, solid sound barriers (1-inch thick plywood is acceptable) and/ or blankets with no holes or cracks with the exception of openings for access, which will placed in a manner that does not interrupt the solid barrier between the noise source and the affected sensitive receptor(s) that provide the necessary attenuation. For example, if the sound level of the equipment is 91 dBA Leq at a distance of 25 feet and is being utilized at a distance of 25 feet from the property line, the sound level would be 91 dBA and the sound barrier would need to provide at least 6 dBA Leq to meet the 85 dBA criteria; and if the same equipment is being used within 10 feet of the property line, the resulting noise level would be 100 dBA Leq and the barrier would need to provide at least 15 dB of sound reduction at that location. A general rule of thumb is that stationary noise sources double in sound level if you half the distance between the noise source and the noise receptor. The following formula can be used to determine the sound level at distance 2 (receptor) if you know the sound level at distance 1 (generator).

dBA2 = dBA1 + 10log10(D1/D2)^(2)

d) All stationary construction equipment will be oriented in such a manner so that emitted noise is directed away from the noise sensitive receptors that are nearest to the project site.

e) All construction equipment, fixed or mobile, will have properly operating and maintained mufflers.

f) Equipment will be shut off and not left to idle when not in use.

g) The contractor will locate equipment staging in areas that will create the greatest distance between construction-related noise/vibration sources and sensitive receptors nearest the project site during all project construction.

h) Jackhammers, pneumatic equipment, and all other portable stationary noise sources will be shielded using acoustic enclosures/or acoustical tents with required reductions per item a above.

i) The construction contractor will prohibit the use of music or sound amplification on the project site during construction.

j) For the duration of construction activities, the Valley Water Office of Communications will serve as the contact person should noise and/or vibration levels cause annoyance to local residents. A sign will be posted at the project site with the contact phone number.

Construction truck trips would occur throughout the construction period. Given the project site's proximity to SR-85 and SR-17, it is anticipated that haul truck traffic would take the most direct route to the appropriate freeway ramps. The haul route will be reviewed and approved by the Town.

According to the FHWA, the traffic volumes need to be doubled in order to increase noise levels by 3 dBA CNEL.[1] As shown in Traffic Assessment completed for the proposed project (Ganddini Group, 2022), project construction is anticipated to generate up to 70 heavy truck/equipment and worker vehicles per day along off-site roadway segments and would not be anticipated to result in a doubling of traffic volumes. Off-site project generated construction vehicle trips would result in a negligible noise level increase. Therefore, noise impacts from off-site construction traffic would not expose persons to noise levels in excess of standards established by the Town and would be less than significant. No mitigation measures are required.

Operational Noise (permanent)

Project operational noise may impact adjacent single family and multiple family residential land uses. Per Section 16.20.15 of the Town Code, no person shall cause, make, suffer or allow to be made by any machine, animal, device or any combination of same in a residential zone, a noise level more than six (6) dB above

[1] Federal Highway Administration, Highway Noise Prediction Model, December 1978.

the noise level specified for that particular noise zone, as shown on the Noise Zone Map, during that particular time frame, at any point outside of the property plane.

Town of Los Gatos Noise Zone Maps, which are divided into three time periods, (6:00 AM to 1 :00 PM, 1:00 PM to 10:00 PM, and 10:00 PM to 6:00 AM). Project operation would occur during all of these time periods. Noise associated with project operation may affect properties to the north of the project site. The noise zone maps show the criteria to be 55 dBA L_{eq} between the hours of 6:00 AM and 1:00 PM, 56 dBA L_{eq} between the hours of 1:00 PM and 10:00 PM and 48 dBA L_{eq} between the hours of 10:00 PM and 6:00 AM. However, there is a note on the noise zone maps that instructs that these criteria should be lowered by 5 dB if the noise is to occur on weekends or holidays which needs to be done because operational noise will occur on weekends and holidays. Furthermore, 6 dB needs to be added back to each criterion per Section 16.20.015, Exterior noise levels for residential zones (above). Finally, because operational noise will be continuous and not turned off and on at any particular time, it is most prudent to choose the lowest criteria as a design goal not to exceed, which is 48 dB-5 dB (weekend & holiday penalty) + 6 dB (per Section 16.20.015) = 49 dBA.

Activities at the existing staging area portion of the project site (APN 424-440-30) located south of existing multiple family land uses are expected to remain the same with implementation of the project. Existing noise levels at the northern property line range between 49.2 dBA Leq 1:00 AM in the morning and 64.7 at 11:00 AM in the morning. The primary noise source at this location is vehicle traffic associated with Highway 85 and Winchester Boulevard. Occasional noise events associated with the proposed project were secondary to vehicle noise.

Noise associated with the proposed improvements on parcel 424-08-076 was modeled using the SoundPLAN noise modeling software. However, exact sound specifications for proposed operational equipment including the proposed generator, pump house with four pumps and a transformer are not yet available. Instead, the SoundPLAN noise model was utilized to develop design criteria for proposed equipment in order to not exceed the most conservative Town standard of 49 dBA Leq. Modeling parameters and design criteria are listed below. Modeling results are shown in Figure 6 and modeling data is provided in Appendix E.

Pump House Design Criteria: Not to exceed 61 dBA Leq at northern wall of pump house building.

Generator Design Criteria: Not to exceed 64 dBA Leq at northern side of generator enclosure.

Transformer Design Criteria: Not to exceed 71 dBA Leq at eastern side of building/enclosure.

The noise levels for each piece of equipment listed above can be interchanged, lowered, or raised between equipment as long as the final result does not exceed 59 dBA Leq at the property line. Equipment noise levels can be added using Formula 1, shown below. However, it is important to first calculate the noise level of each noise source at each receiver using the Inverse Square Law (Formula 2 shown below). To account for the effects of all of the noise sources, noise levels associated with all three noise sources should be added at each receptor separately taking into account the varying distances between the noise sources and receptors.

<u>Formula 1:</u>

$$\text{Total Sound Pressure Level (SPL)} = 10\log_{10}[10^{\text{SPL1}/10} + 10^{\text{SPL2}/10} + \ldots 10^{\text{SPLn}/10}]$$

For example, for three pieces of equipment with noise levels of 57, 48, and 47 dB would be 57 dB.

$$\text{Total Sound Pressure Level (SPL)} = 10\log_{10}[10^{57/10} + 10^{48/10} + \ldots 10^{47/10}] = 57\text{ dB}$$

Formula 2:

$$dBA2 = dBA1 + 10\log10(D1/D2)^{\wedge}(2)$$

For example, the following formula projects a noise source from 50 feet to 100 feet.
:

$$dBA\ 2\ (100\ ft) = dBA1\ (50\ feet) + 10\log10(D100/D50)^{\wedge}(2)$$

Mitigation Measure

Concrete block walls, sound barriers, and/or mufflers will be utilized as part of the project design to ensure that the proposed backup generators, 600-hp pumps, and transformers do not exceed the applicable exterior noise standard of 49 dBA L_{eq} at property lines shared with residential land uses per Section 16.20.015 of the Town Code. An enclosed concrete block structure typically provides up to 20-30 dBA of interior to exterior sound reduction; a concrete wall that blocks the direct line of sight between a noise source and a receiver typically provides 15-20 dBA of reduction and mufflers can be custom designed to reduce up to 30 dB in sound levels, depending on the type of equipment.

b) Generate excessive groundborne vibration or groundborne noise levels?

The Town of Los Gatos has not adopted a significance threshold to assess vibration related impacts during construction; however, the Town of Los Gatos Draft 2040 General Plan Draft Environmental Impact Report utilizes the FTA guidelines set forth in the FTA Transit Noise and Vibration Assessment (2018) to assess vibration. As stated previously, the FTA threshold at which there is a risk to "architectural" damage to non-engineered timber and masonry buildings is a peak particle velocity (PPV) of 0.2 in/sec, at engineered concrete and masonry buildings a PPV of 0.3 in/sec, and at reinforced-concrete, steel or timber buildings a PPV of 0.5 in/sec (Table 3). Furthermore, the FTA vibration criteria associated with human annoyance shown in Table 4 shows that 72 VdB is the threshold for annoyance from groundborne vibration at sensitive receptors.

c) For a project located within the vicinity of a private airstrip or an airport land use plan or where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?

As stated in the Town of Los Gatos Draft 2040 General Plan Draft Environmental Impact Report, there are no airport or private airstrips within the Town of Los Gatos. The closest airports to the project site are the Norman Y. Mineta San Jose International Airport, with runways as located as close as approximately 6.75 miles northwest of the project site, and the Reid-Hillview Airport, with runways located as close as approximately 9.19 miles northeast of the project site. Therefore, the proposed project site is not located within two miles of a public airport or public use airport.

8. REFERENCES

California, State of, Department of Transportation
2020 Transportation and Construction Vibration Guidance Manual. April.

California, State of, Building Code
2019 Chapter 12, Section 1206.4 Allowable Interior Noise Levels

Environmental Protection Agency
1974 "Information on Levels of Environmental Noise Requisite to Protect Public Health And Welfare with an Adequate Margin of Safety," EPA/ONAC 550/9-74-004, March 1974.

Federal Transit Administration
2018 Transit Noise and Vibration Impact Assessment Manual. Typical Construction Equipment Vibration Emissions.

Ganddini Group, Inc.
2022 Vasona Pump Station Upgrade Traffic Assessment. March.
2022 Vasona Pump Station Upgrade Air Quality, Global Climate Change, and Energy Impact Analysis. March.

Los Gatos, Town of
2010 2020 General Plan. September 20.
2021 Draft 2040 General Plan. June.
2021 Code of Ordinances. June 30.

Office of Planning and Research
2017 State of California General Plan Guidelines

U.S. Department of Transportation
2006 FHWA Roadway Construction Noise Model User's Guide. January.

APPENDICES

APPENDIX A

LIST OF ACRONYMS

Term	Definition
ADT	Average Daily Traffic
ANSI	American National Standard Institute
CEQA	California Environmental Quality Act
CNEL	Community Noise Equivalent Level
D/E/N	Day / Evening / Night
dB	Decibel
dBA or dB(A)	Decibel "A-Weighted"
dBA/DD	Decibel per Double Distance
dBA Leq	Average Noise Level over a Period of Time
EPA	Environmental Protection Agency
FHWA	Federal Highway Administration
L_{02},L_{08},L_{50},L_{90}	A-weighted Noise Levels at 2 percent, 8 percent, 50 percent, and 90 percent, respectively, of the time period
DNL	Day-Night Average Noise Level
$Leq_{(x)}$	Equivalent Noise Level for '"x" period of time
Leq	Equivalent Noise Level
L_{max}	Maximum Level of Noise (measured using a sound level meter)
L_{min}	Minimum Level of Noise (measured using a sound level meter)
Lp	Sound pressure level
LOS C	Level of Service C
Lw	Sound Power Level
OPR	California Governor's Office of Planning and Research
PPV	Peak Particle Velocities
RCNM	Road Construction Noise Model
REMEL	Reference Energy Mean Emission Level
RMS	Root Mean Square

APPENDIX B

GLOSSARY

Term	Definition
Ambient Noise Level	The all-encompassing noise environment associated with a given environment, at a specified time, usually a composite of sound from many sources, at many directions, near and far, in which usually no particular sound is dominant.
A-Weighted Sound Level, dBA	The sound level obtained by use of A-weighting. The A-weighting filter de-emphasizes the very low and very high frequency components of the sound in a manner similar to the frequency response of the human ear.
CNEL	Community Noise Equivalent Level. CNEL is a weighted 24-hour noise level that is obtained by adding five decibels to sound levels in the evening (7:00 PM to 10:00 PM), and by adding ten decibels to sound levels at night (10:00 PM to 7:00 AM). This weighting accounts for the increased human sensitivity to noise during the evening and nighttime hours.
Decibel, dB	A logarithmic unit of noise level measurement that relates the energy of a noise source to that of a constant reference level; the number of decibels is 10 times the logarithm (to the base 10) of this ratio.
DNL, Ldn	Day Night Level. The DNL, or Ldn is a weighted 24-hour noise level that is obtained by adding ten decibels to sound levels at night (10:00 PM to 7:00 AM). This weighting accounts for the increased human sensitivity to noise during the nighttime hours.
Equivalent Continuous Noise Level, Leq	A level of steady state sound that in a stated time period, and a stated location, has the same A-weighted sound energy as the time-varying sound.
Fast/Slow Meter Response	The fast and slow meter responses are different settings on a sound level meter. The fast response setting takes a measurement every 100 milliseconds, while a slow setting takes one every second.
Frequency, Hertz	In a function periodic in time, the number of times that the quantity repeats itself in one second (i.e., the number of cycles per second).
L_{02}, L_{08}, L_{50}, L_{90}	The A-weighted noise levels that are equaled or exceeded by a fluctuating sound level, 2 percent, 8 percent, 50 percent, and 90 percent of a stated time period, respectively.
L_{max}, L_{min}	Lmax is the RMS (root mean squared) maximum level of a noise source or environment measured on a sound level meter, during a designated time interval, using fast meter response. Lmin is the minimum level.
Offensive/ Offending/Intrusive Noise	The noise that intrudes over and above the existing ambient noise at a given location. The relative intrusiveness of sound depends on its amplitude, duration, frequency, and time of occurrence, and tonal information content as well as the prevailing ambient noise level.
Root Mean Square (RMS)	A measure of the magnitude of a varying noise source quantity. The name derives from the calculation of the square root of the mean of the squares of the values. It can be calculated from either a series of lone values or a continuous varying function.

APPENDIX C

NOISE MEASUREMENT FIELD WORKSHEETS

Noise Measurement
Field Data

Project Name: Vasona Pump Station, City of Los Gatos **Date:** January 18-19 2022

Project #: 19437

Noise Measurement #: LTNM1 Run Time: 24 hours (24 x 1 hourss) **Technician:** Ian Edward Gallagher

Nearest Address or Cross Street: 116 Mojonera Ct, Los Gatos, CA 95032.

Site Description (Type of Existing Land Use and any other notable features): Project Site: Commercial buildings, paved access road (Fremont Ct), parking, & various equipment/storage. Bordered by single and multi-family residential uses to north, Fremont Court & 85-Fwy to south, Oka Rd to east, & Winchester Blvd to west. Noise Measurement Site: Fremont St to south w/ 85-Fwy further south, single-family residential to north, & sit ebuildings to west.

Weather: Overcast 18th, sunny on the 19th.Sunset/rise 5:19PM/7:18AM **Settings:** SLOW FAST

Temperature: 44-62 deg F **Wind:** 0-5 mph **Humidity:** 65-85% **Terrain:** Flat

Start Time: 12:00 PM **End Time:** 12:00 PM **Run Time:**

Leq:	54.4	dB
Lmax	76.2	dB
L2	59.9	dB
L8	58.2	dB
L25	55.7	dB
L50	52.7	dB

Primary Noise Source: Traffic noise from vehicles traveling along 85 & 17 Freeways. Traffic ambiance from vehicles traveling along other roads

Secondary Noise Sources: Overhead air traffic, residential ambiance. Bird song. Slight leaf rustle from gentle breeze. Vasona pump station activity, vehicles arriving / leaving.

NOISE METER:	SoundTrack LXT Class 1	**CALIBRATOR:**	Larson Davis CA 250
MAKE:	Larson Davis	**MAKE:**	Larson Davis
MODEL:	LXT1	**MODEL:**	CA 250
SERIAL NUMBER:	3099	**SERIAL NUMBER:**	2723
FACTORY CALIBRATION DATE:	11/17/2021	**FACTORY CALIBRATION DATE:**	11/18/2021
FIELD CALIBRATION DATE:	1/18/2022		

Noise Measurement
Field Data

PHOTOS:

LTNM1 looking WNW along Fremont Ct through inner gate towards site buildings. Backyard to residence, 116 Mojonera Ct, Los Gatos, on tother side of fence (right side of picture).

LTNM1 looking ESE along Fremont Ct towards Oka Road intersection. Backyard to residence, 116 Mojonera Ct, Los Gatos, on other side of fence (left side of picture).

Summary			
File Name on Meter	LxT_Data.028.s		
File Name on PC	LxT_0003099-20220118 120000-LxT_Data		
Serial Number	0003099		
Model	SoundTrack LxT®		
Firmware Version	2.404		
User	Ian Edward Gallagher		
Location	LTNM1 37°15'28.61"N 121°57'31.48"W, E side of site.		
Job Description	24 hour noise measurement (24 x 1 hours).		
Note	Ganddini 19437 Vasona Pump Station, City of Los Gatos.		
Measurement			
Start	2022-01-18 12:00:00		
Stop	2022-01-19 12:00:00		
Duration	24:00:00.0		
Run Time	24:00:00.0		
Pause	00:00:00.0		
Pre-Calibration	2022-01-18 10:08:03		
Post-Calibration	None		
Overall Settings			
RMS Weight	A Weighting		
Peak Weight	A Weighting		
Detector	Slow		
Preamplifier	PRMLxT1L		
Microphone Correction	Off		
Integration Method	Linear		
OBA Range	Normal		
OBA Bandwidth	1/1 and 1/3		
OBA Frequency Weighting	A Weighting		
OBA Max Spectrum	Bin Max		
Overload	124.7 dB		
Results			
LAeq	54.4		
LAE	103.7		
EA	2.633 mPa²h		
EA8	877.706 µPa²h		
EA40	4.389 mPa²h		
LApeak (max)	2022-01-18 13:10:13	94.1 dB	
LASmax	2022-01-18 13:53:02	76.2 dB	
LASmin	2022-01-19 02:53:22	30.2 dB	
		Statistics	
LCeq	65.2 dB	**LA2.00**	59.9 dB
LAeq	54.4 dB	**LA8.00**	58.2 dB
LCeq - LAeq	10.8 dB	**LA25.00**	55.7 dB
LAIeq	55.3 dB	**LA50.00**	52.7 dB
LAeq	54.4 dB	**LA90.00**	40.7 dB
LAIeq - LAeq	0.9 dB	**LA99.00**	33.5 dB
Overload Count	0		

Record #	Date	Time	Run Duration	Run Time	Pause	LAeq	LASmin	LASmin Time	LASmax	LASmax Time	LAS2.00	LAS8.00	LAS25.00	LAS50.00	LAS90.00	LAS99.00
1	2022-01-18	12:00:00	01:00:00.0	01:00:00.0	00:00:00.0	54.6	47.0	12:59:59	65.3	12:22:25	58.6	57.2	55.5	54.0	51.3	48.8
2	2022-01-18	13:00:00	01:00:00.0	01:00:00.0	00:00:00.0	54.4	45.5	13:23:55	76.2	13:53:02	58.4	54.4	52.8	51.3	48.6	46.8
3	2022-01-18	14:00:00	01:00:00.0	01:00:00.0	00:00:00.0	53.6	46.0	14:35:58	71.1	14:15:13	58.3	55.1	53.5	52.1	49.7	47.8
4	2022-01-18	15:00:00	01:00:00.0	01:00:00.0	00:00:00.0	53.3	46.0	15:50:56	73.3	15:18:33	56.9	54.8	53.6	52.4	49.3	47.4
5	2022-01-18	16:00:00	01:00:00.0	01:00:00.0	00:00:00.0	55.1	46.6	16:05:52	68.7	16:01:50	58.8	57.3	55.8	54.1	50.9	48.2
6	2022-01-18	17:00:00	01:00:00.0	01:00:00.0	00:00:00.0	57.1	52.1	17:09:52	63.3	17:40:45	59.8	58.8	57.9	56.9	54.9	53.4
7	2022-01-18	18:00:00	01:00:00.0	01:00:00.0	00:00:00.0	57.0	51.6	18:58:23	67.0	18:13:40	60.4	58.9	57.7	56.5	54.4	52.5
8	2022-01-18	19:00:00	01:00:00.0	01:00:00.0	00:00:00.0	55.4	48.0	19:57:15	67.5	19:29:18	59.4	57.9	56.4	54.7	51.9	49.6
9	2022-01-18	20:00:00	01:00:00.0	01:00:00.0	00:00:00.0	54.2	46.0	20:00:30	71.1	20:40:19	57.4	55.9	54.4	53.1	50.8	49.1
10	2022-01-18	21:00:00	01:00:00.0	01:00:00.0	00:00:00.0	52.8	42.8	21:58:19	62.2	21:41:25	56.6	55.2	53.7	52.3	49.0	45.6
11	2022-01-18	22:00:00	01:00:00.0	01:00:00.0	00:00:00.0	50.7	44.8	22:55:33	63.2	22:24:37	54.6	53.0	51.5	50.1	47.5	45.5
12	2022-01-18	23:00:00	01:00:00.0	01:00:00.0	00:00:00.0	49.8	41.9	23:27:42	63.9	23:26:00	54.6	52.0	50.0	48.5	45.8	43.3
13	2022-01-19	00:00:00	01:00:00.0	01:00:00.0	00:00:00.0	47.0	34.4	00:56:58	65.8	00:03:11	52.1	49.7	47.5	45.5	40.8	36.4
14	2022-01-19	01:00:00	01:00:00.0	01:00:00.0	00:00:00.0	41.8	31.3	01:59:59	63.2	01:25:08	49.4	44.6	41.2	38.8	34.6	32.9
15	2022-01-19	02:00:00	01:00:00.0	01:00:00.0	00:00:00.0	40.9	30.2	02:53:22	56.9	02:09:14	49.8	43.9	40.4	37.8	32.8	30.7
16	2022-01-19	03:00:00	01:00:00.0	01:00:00.0	00:00:00.0	43.7	30.9	03:00:38	63.4	03:54:52	51.4	47.4	42.4	39.3	34.5	31.9
17	2022-01-19	04:00:00	01:00:00.0	01:00:00.0	00:00:00.0	47.4	31.8	04:17:30	58.8	04:25:28	53.9	51.6	48.6	45.3	38.9	34.3
18	2022-01-19	05:00:00	01:00:00.0	01:00:00.0	00:00:00.0	52.9	43.1	05:03:53	65.1	05:42:17	57.4	55.6	54.0	52.2	48.3	45.1
19	2022-01-19	06:00:00	01:00:00.0	01:00:00.0	00:00:00.0	57.2	48.4	06:01:32	70.6	06:27:48	61.7	59.8	57.8	56.1	53.3	50.5
20	2022-01-19	07:00:00	01:00:00.0	01:00:00.0	00:00:00.0	58.3	53.0	07:45:45	67.5	07:06:07	62.0	60.5	59.0	57.8	55.8	54.2
21	2022-01-19	08:00:00	01:00:00.0	01:00:00.0	00:00:00.0	58.6	53.9	08:32:37	70.5	08:44:35	61.5	60.2	59.1	58.2	56.3	55.0
22	2022-01-19	09:00:00	01:00:00.0	01:00:00.0	00:00:00.0	56.6	50.9	09:48:39	67.3	09:16:01	59.9	58.9	57.5	56.1	53.8	52.1
23	2022-01-19	10:00:00	01:00:00.0	01:00:00.0	00:00:00.0	54.9	47.9	10:54:13	66.2	10:49:12	58.7	57.1	55.8	54.4	51.5	49.0
24	2022-01-19	11:00:00	01:00:00.0	01:00:00.0	00:00:00.0	52.7	46.1	11:31:21	66.8	11:01:34	56.6	54.9	53.6	52.3	49.5	47.4

Measurement Report

Report Summary

Meter's File Name	LxT_Data.028.s	Computer's File Name	LxT_0003099-20220118 120000-LxT_Data.028.ldbin
Meter	LxT1 0003099		
Firmware	2.404		
User	Ian Edward Gallagher	Location	LTNM1 37°15'28.61"N 121°57'31.48"W, E side of site.
Job Description	24 hour noise measurement (24 x 1 hours).		
Note	Ganddini 19437 Vasona Pump Station, City of Los Gatos.		

Start Time	2022-01-18 12:00:00	Duration	24:00:00.0		
End Time	2022-01-19 12:00:00	Run Time	24:00:00.0	Pause Time	0:00:00.0

Results

Overall Metrics

LA_{eq}	54.4 dB		
LAE	103.7 dB	SEA	--- dB
EA	2.6 mPa²h	LAFTM5	56.5 dB
EA8	877.7 µPa²h		
EA40	4.4 mPa²h		
LA_{peak}	94.1 dB	2022-01-18 13:10:13	
LAS_{max}	76.2 dB	2022-01-18 13:53:02	
LAS_{min}	30.2 dB	2022-01-19 02:53:22	
LA_{eq}	54.4 dB		
LC_{eq}	65.2 dB	LC_{eq} - LA_{eq}	10.8 dB
LAI_{eq}	55.3 dB	LAI_{eq} - LA_{eq}	0.9 dB

Exceedances	Count	Duration
LAS > 65.0 dB	42	0:03:23.2
LAS > 85.0 dB	0	0:00:00.0
LApeak > 135.0 dB	0	0:00:00.0
LApeak > 137.0 dB	0	0:00:00.0
LApeak > 140.0 dB	0	0:00:00.0

Community Noise	LDN	LDay	LNight	
	--- dB	--- dB	0.0 dB	
	LDEN	LDay	LEve	LNight
	--- dB	--- dB	--- dB	--- dB

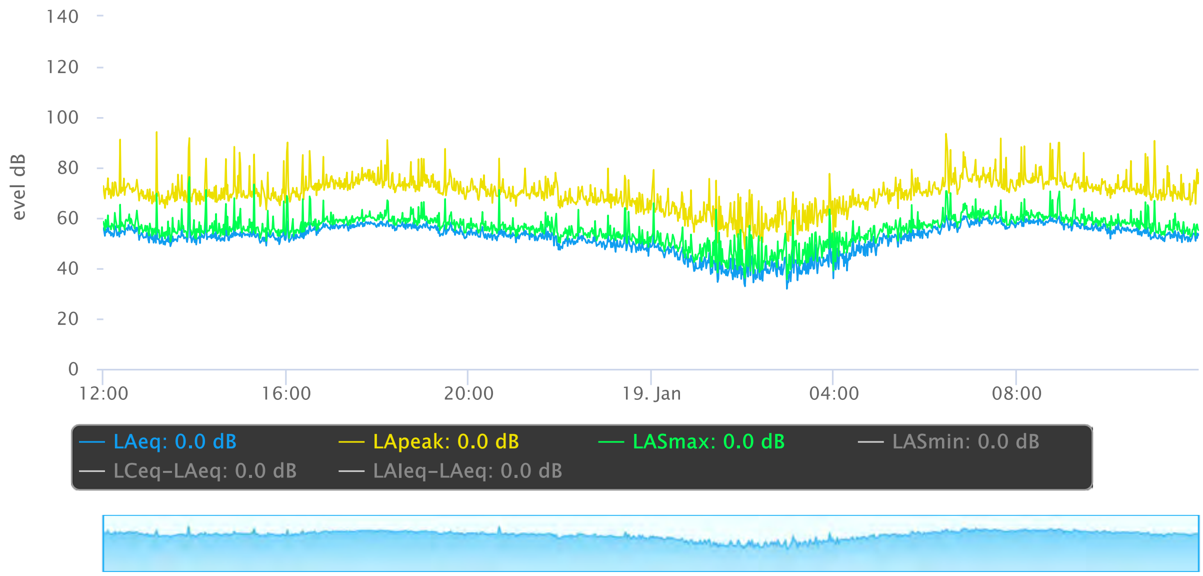
Any Data	A Level	A Time Stamp	C Level	C Time Stamp	Z Level	Z Time Stamp
L_{eq}	54.4 dB		65.2 dB		--- dB	
$Ls_{(max)}$	76.2 dB	2022-01-18 13:53:02	--- dB		--- dB	
$LS_{(min)}$	30.2 dB	2022-01-19 02:53:22	--- dB		--- dB	
$L_{Peak(max)}$	94.1 dB	2022-01-18 13:10:13	--- dB		--- dB	

Overloads	Count	Duration	OBA Count	OBA Duration
	0	0:00:00.0	0	0:00:00.0

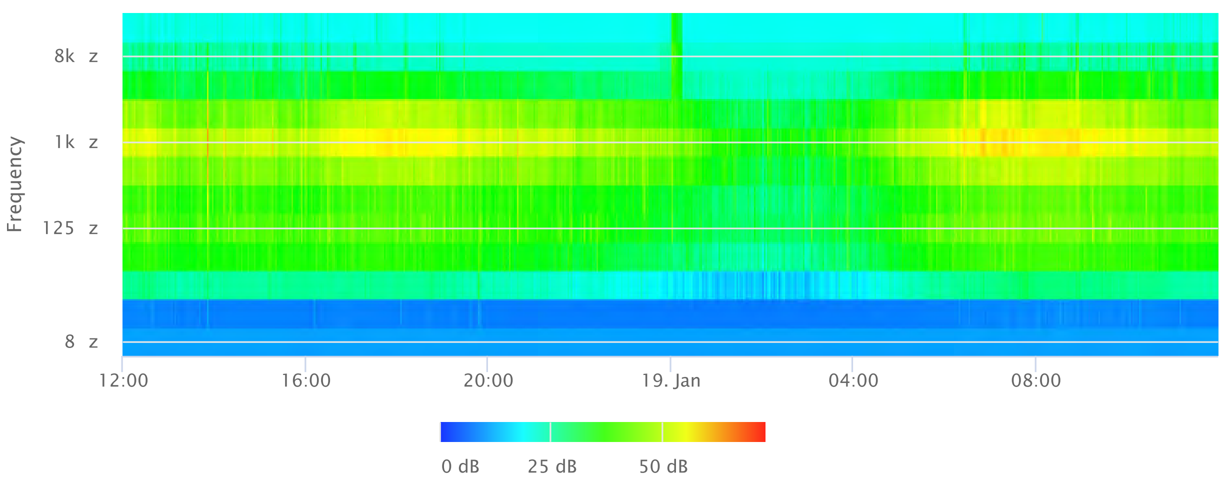
Statistics

LAS 2.0	59.9 dB
LAS 8.0	58.2 dB
LAS 25.0	55.7 dB
LAS 50.0	52.7 dB
LAS 90.0	40.7 dB
LAS 99.0	33.5 dB

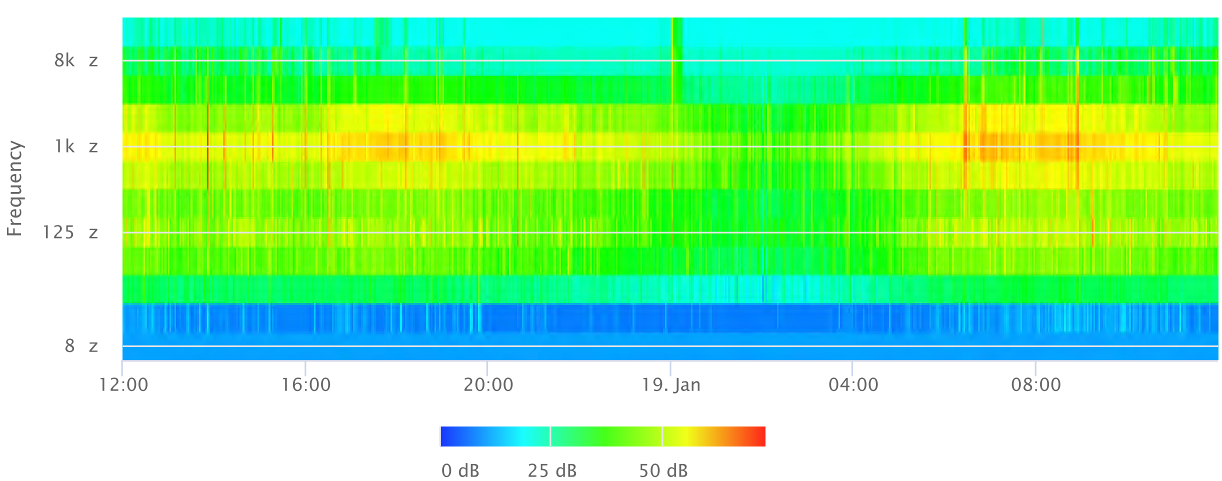
T e s ry



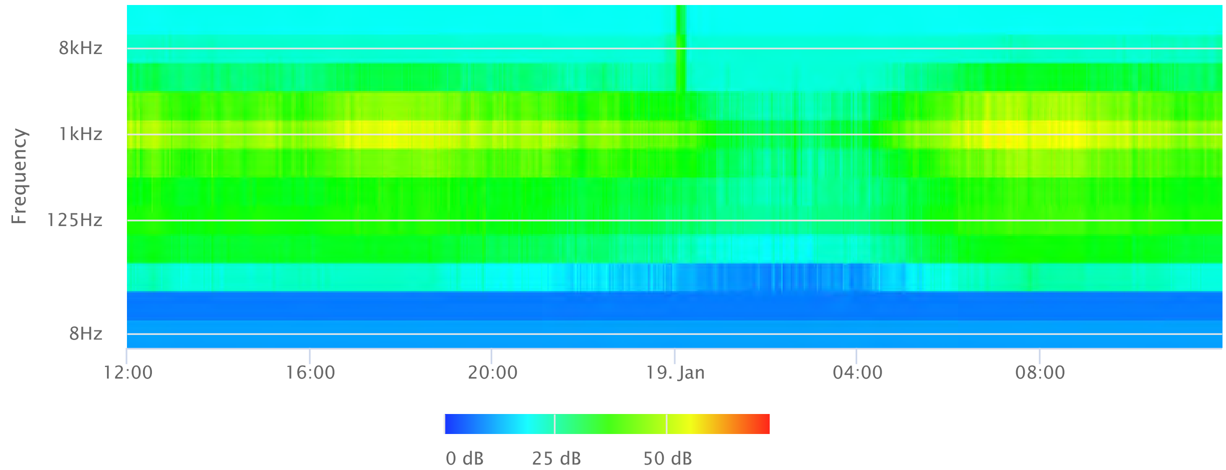
BA 1/1 eq



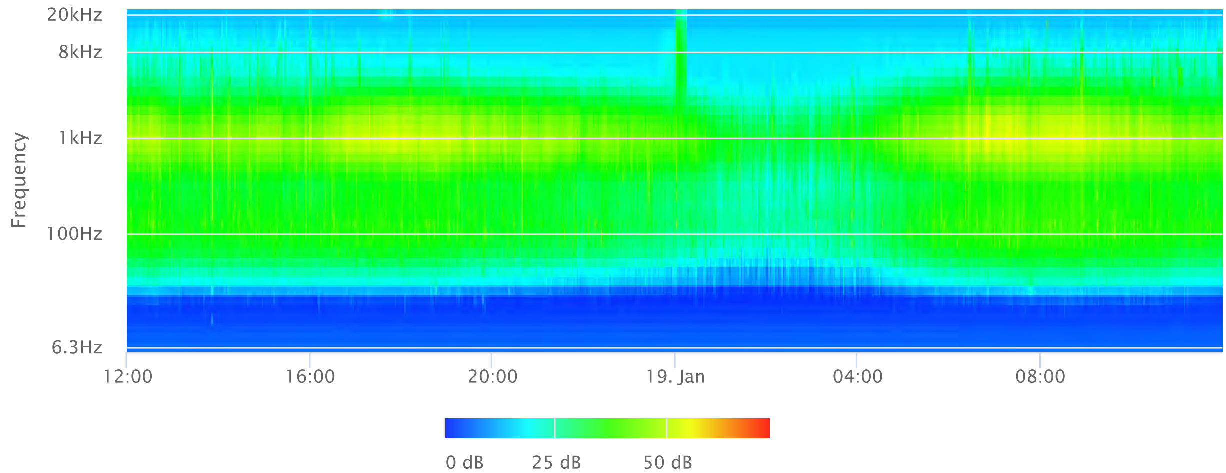
BA 1/1 ax



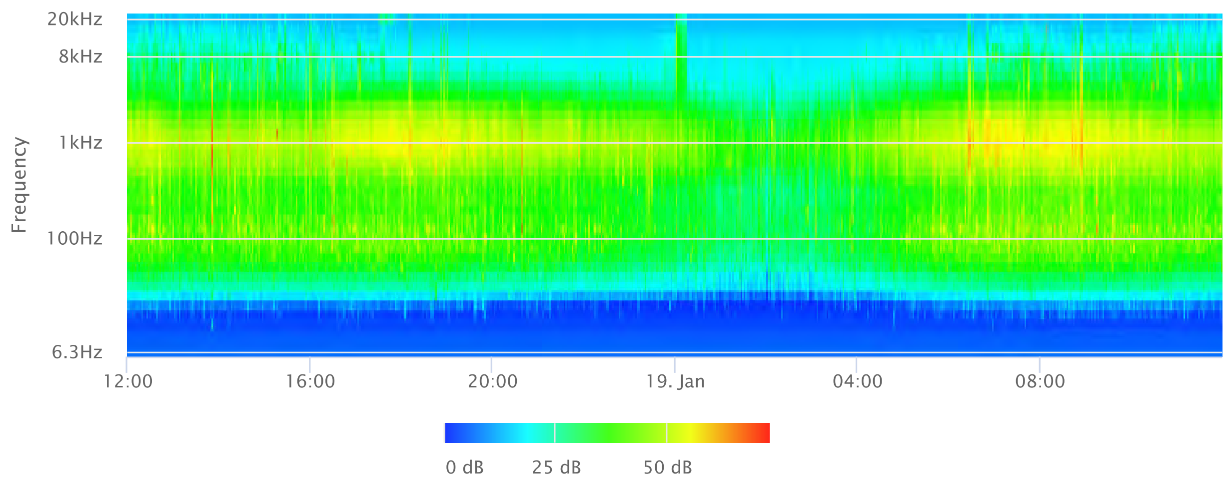
OBA 1/1 Lmin



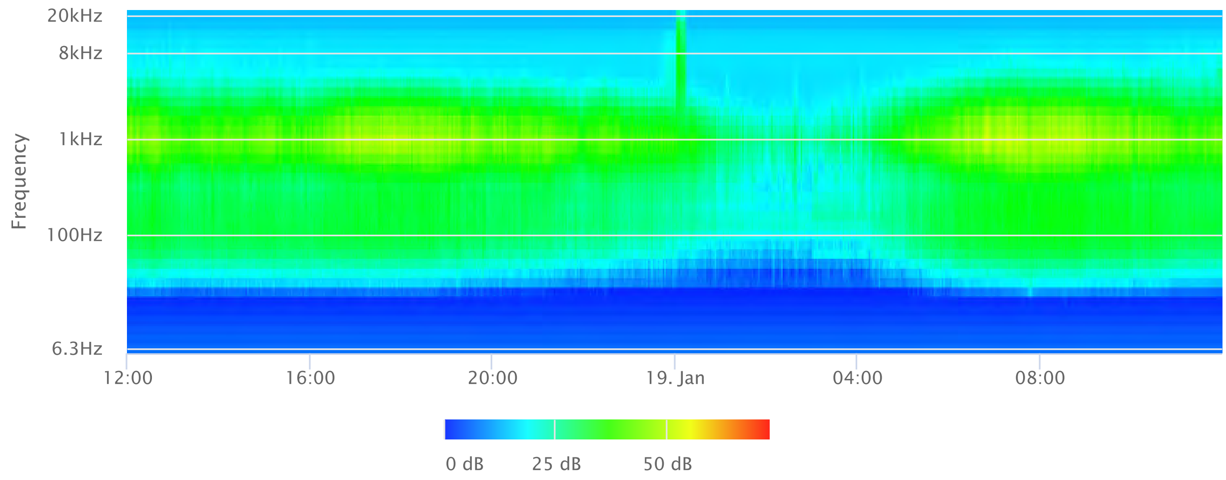
OBA 1/3 Leq



OBA 1/3 Lmax



OBA 1/3 Lmin


20kHz
8kHz
1kHz
100Hz
6.3Hz
Frequency
12:00
16:00
20:00
19. Jan
04:00
08:00
0 dB
25 dB
50 dB

Noise Measurement
Field Data

Project Name: Vasona Pump Station, City of Los Gatos **Date:** January 18-19 2022

Project #: 19437

Noise Measurement #: LTNM2 Run Time: 24 hours (24 x 1 hourss) **Technician:** Ian Edward Gallagher

Nearest Address or Cross Street: 100 Winchester Cir, Los Gatos, CA 95032.

Site Description (Type of Existing Land Use and any other notable features): Project Site: Commercial buildings, paved access road (Fremont Ct), parking, & various equipment/storage. Bordered by single and multi-family residential uses to north, Fremont Court & 85-Fwy to south, Oka Rd to east, & Winchester Blvd to west. Noise Measurement Site: Vacant portion site to south (dirt acces roads), Winchester Circle & multi-family residential to north, Winchester Blvd & train tracks to west.

Weather: Overcast 18th, sunny on the 19th.Sunset/rise 5:19PM/7:18AM **Settings:** SLOW FAST

Temperature: 44-62 deg F **Wind:** 0-5 mph **Humidity:** 65-85% **Terrain:** Flat

Start Time: 12:00 PM **End Time:** 12:00 PM **Run Time:**

Leq: 61.6 dB

Lmax 83.7 dB

L2 65.9 dB

L8 64.6 dB

L25 63.0 dB

L50 61.3 dB

Primary Noise Source: Traffic noise from vehicles traveling along 85 & 17 Freeways. Traffic ambiance from vehicles traveling along Winchester Blvd & other roads

Secondary Noise Sources: Overhead air traffic, residential ambiance. Bird song. Slight leaf rustle from gentle breeze. Vasona pump station activity. Train track parallel with Winchester Blvd

NOISE METER:	SoundTrack LXT Class 2	**CALIBRATOR:**	Larson Davis CAL 200
MAKE:	Larson Davis	**MAKE:**	Larson Davis
MODEL:	LXT2	**MODEL:**	CAL 200
SERIAL NUMBER:	1152	**SERIAL NUMBER:**	15741
FACTORY CALIBRATION DATE:	3/31/2021	**FACTORY CALIBRATION DATE:**	7/23/2020
FIELD CALIBRATION DATE:	1/18/2022		

PHOTOS:

LTNM2 looking WNW along northern edge of site towards rail line and Winchester Blvd.

LTNM2 looking north, past fence & across Winchester Cir, towards building 100 Winchester Cir, Los Gatos.

Summary		
File Name on Meter	LxT_Data.001.s	
File Name on PC	LxT_0001152-20220118 120000-LxT_Data.00	
Serial Number	0001152	
Model	SoundTrack LxT®	
Firmware Version	2.404	
User	Ian Edward Gallagher	
Location	LTNM2 37°15'32.44"N 121°57'46.19"W, W side of site.	
Job Description	24 hour noise measurement (24 x 1 hours)	
Note	Ganddini 19437 Vasona Pump Station, City of Los Gatos	

Measurement	
Start	2022-01-18 12:00:00
Stop	2022-01-19 12:00:00
Duration	24:00:00.0
Run Time	24:00:00.0
Pause	00:00:00.0
Pre-Calibration	2022-01-18 10:49:04
Post-Calibration	None

Overall Settings	
RMS Weight	A Weighting
Peak Weight	A Weighting
Detector	Slow
Preamplifier	PRMLxT1
Microphone Correction	Off
Integration Method	Linear
OBA Range	Normal
OBA Bandwidth	1/1 and 1/3
OBA Frequency Weighting	A Weighting
OBA Max Spectrum	Bin Max
Overload	146.0 dB

Results		
LAeq	61.6	
LAE	110.9	
EA	13.787 mPa²h	
EA8	4.596 mPa²h	
EA40	22.979 mPa²h	
LApeak (max)	2022-01-18 13:52:56	96.8 dB
LASmax	2022-01-18 14:28:21	83.7 dB
LASmin	2022-01-19 03:53:43	34.7 dB

		Statistics	
LCeq	69.5 dB	**LA2.00**	65.9 dB
LAeq	61.6 dB	**LA8.00**	64.6 dB
LCeq - LAeq	7.9 dB	**LA25.00**	63.0 dB
LAIeq	62.2 dB	**LA50.00**	61.3 dB
LAeq	61.6 dB	**LA90.00**	48.9 dB
LAIeq - LAeq	0.6 dB	**LA99.00**	37.8 dB
Overload Count	0		

Record #	Date	Time	Run Duration	Run Time	Pause	LAeq	LASmin	LASmin Time	LASmax	LASmax Time	LAS2.00	LAS8.00	LAS25.00	LAS50.00	LAS90.00	LAS99.00
1	2022-01-18	12:00:00	01:00:00.0	01:00:00.0	00:00:00.0	62.1	55.0	12:13:35	72.7	12:16:02	65.0	63.6	62.8	61.9	59.9	57.9
2	2022-01-18	13:00:00	01:00:00.0	01:00:00.0	00:00:00.0	62.2	55.2	13:26:07	79.6	13:59:57	66.0	63.5	62.4	61.5	59.5	56.9
3	2022-01-18	14:00:00	01:00:00.0	01:00:00.0	00:00:00.0	62.8	55.2	14:06:07	83.7	14:28:21	65.6	64.0	63.0	62.1	60.2	57.5
4	2022-01-18	15:00:00	01:00:00.0	01:00:00.0	00:00:00.0	62.7	56.7	15:56:14	77.0	15:56:46	65.8	64.1	63.1	62.3	60.4	58.5
5	2022-01-18	16:00:00	01:00:00.0	01:00:00.0	00:00:00.0	62.8	57.7	16:57:04	76.4	16:09:30	65.4	64.2	63.3	62.5	60.8	59.3
6	2022-01-18	17:00:00	01:00:00.0	01:00:00.0	00:00:00.0	63.3	60.0	17:58:36	69.7	17:02:55	65.3	64.5	63.7	63.1	62.0	60.8
7	2022-01-18	18:00:00	01:00:00.0	01:00:00.0	00:00:00.0	63.6	58.4	18:42:15	72.9	18:19:51	65.8	65.1	64.3	63.5	61.7	60.0
8	2022-01-18	19:00:00	01:00:00.0	01:00:00.0	00:00:00.0	61.5	55.6	19:31:31	70.9	19:15:32	64.3	63.3	62.3	61.3	59.1	57.6
9	2022-01-18	20:00:00	01:00:00.0	01:00:00.0	00:00:00.0	61.1	55.5	20:00:46	70.8	20:40:44	64.0	62.8	61.8	60.8	58.6	56.8
10	2022-01-18	21:00:00	01:00:00.0	01:00:00.0	00:00:00.0	60.1	48.7	21:58:33	72.0	21:49:58	63.5	62.3	61.1	59.7	56.5	52.5
11	2022-01-18	22:00:00	01:00:00.0	01:00:00.0	00:00:00.0	59.2	50.5	22:50:39	71.9	22:30:10	63.4	61.7	60.1	58.7	55.4	52.5
12	2022-01-18	23:00:00	01:00:00.0	01:00:00.0	00:00:00.0	57.3	47.8	23:56:34	72.4	23:31:12	61.7	60.0	58.2	56.7	53.0	50.1
13	2022-01-19	00:00:00	01:00:00.0	01:00:00.0	00:00:00.0	53.9	41.6	00:57:33	64.1	00:29:21	59.8	57.4	55.1	52.6	46.8	43.6
14	2022-01-19	01:00:00	01:00:00.0	01:00:00.0	00:00:00.0	49.3	36.3	01:28:56	62.6	01:54:37	56.7	54.1	50.1	44.9	39.7	37.1
15	2022-01-19	02:00:00	01:00:00.0	01:00:00.0	00:00:00.0	49.2	34.9	02:24:10	63.3	02:54:24	56.6	54.1	50.5	43.7	37.6	35.6
16	2022-01-19	03:00:00	01:00:00.0	01:00:00.0	00:00:00.0	53.6	34.7	03:53:43	77.5	03:55:18	59.5	56.3	52.9	47.6	38.2	35.6
17	2022-01-19	04:00:00	01:00:00.0	01:00:00.0	00:00:00.0	55.8	35.5	04:05:41	69.3	04:33:35	61.6	59.5	57.3	54.7	43.0	37.1
18	2022-01-19	05:00:00	01:00:00.0	01:00:00.0	00:00:00.0	60.9	47.3	05:02:05	73.0	05:42:52	64.6	63.5	61.9	60.5	57.0	51.8
19	2022-01-19	06:00:00	01:00:00.0	01:00:00.0	00:00:00.0	63.7	55.4	06:00:46	69.2	06:23:58	66.4	65.4	64.5	63.6	61.5	58.6
20	2022-01-19	07:00:00	01:00:00.0	01:00:00.0	00:00:00.0	64.7	59.5	07:45:46	79.0	07:32:30	67.2	66.4	65.5	64.4	62.2	60.5
21	2022-01-19	08:00:00	01:00:00.0	01:00:00.0	00:00:00.0	64.7	60.8	08:08:04	72.7	08:23:19	66.4	65.9	65.3	64.6	63.3	62.0
22	2022-01-19	09:00:00	01:00:00.0	01:00:00.0	00:00:00.0	63.8	58.3	09:59:59	71.0	09:40:22	66.4	65.4	64.4	63.5	61.8	60.2
23	2022-01-19	10:00:00	01:00:00.0	01:00:00.0	00:00:00.0	62.3	56.4	10:27:29	72.6	10:04:51	64.9	64.0	63.0	62.1	60.5	58.5
24	2022-01-19	11:00:00	01:00:00.0	01:00:00.0	00:00:00.0	61.3	54.3	11:11:06	69.0	11:28:52	64.3	63.1	62.0	61.0	59.0	56.9

easurement ep rt

eport Summary

eter's File Name	LxT_Data.001.s	Computer's File Name	LxT_0001152-20220118 120000-LxT_Data.001.ldbin
eter	LxT1 0001152		
Firmware	2.404		
User	Ian Edward Gallagher	Location	LTNM2 37°15'32.44"N 121°57'46.19"W, W side f site.
Job Descrip i n	24 hour noise measurement (24 x 1 hours)		
Note	Ganddini 19437 Vasona Pump Station, Ci y of Los Gatos		

Start Time	2022-01-18 12:00:00	Duration	24:00:00.0		
End Time	2022-01-19 12:00:00	Run Time	24:00:00.0	Pause Time	0:00:00.0

Results

Overall Metrics

LA_{eq}	61.6 dB		
LAE	110.9 dB	SEA	--- dB
EA	13.8 mPa²h	LAFTM5	63.1 dB
EA8	4.6 mPa²h		
EA40	23.0 mPa²h		
LA_{peak}	96.8 dB	2022-01-18 13:52:56	
LAS_{max}	83.7 dB	2022-01-18 14:28:21	
LAS_{min}	34.7 dB	2022-01-19 03:53:43	
LA_{eq}	61.6 dB		
LC_{eq}	69.5 dB	LC_{eq} - LA_{eq}	7.9 dB
LAI_{eq}	62.2 dB	LAI_{eq} - LA_{eq}	0.6 dB

Exceedances	Count	Durati n
LAS > 65.0 dB	422	2:57:22.1
LAS > 85.0 dB	0	0:00:00.0
LApeak > 135.0 dB	0	0:00:00.0
LApeak > 137.0 dB	0	0:00:00.0
LApeak > 140.0 dB	0	0:00:00.0

Community Noise	LDN	LDay	LNight	
	65.3 dB	62.6 dB	0.0 dB	
	LDEN	LDay	LEve	LNigh
	65.8 dB	63.1 dB	60.6 dB	58.1 dB

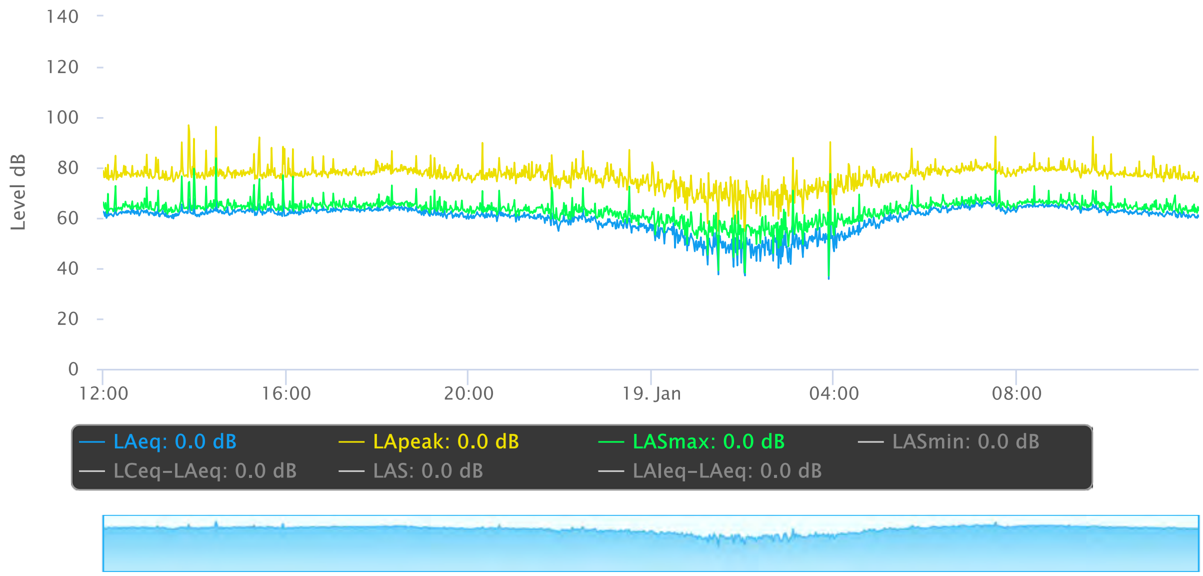
Any Data	A		C		Z	
	Level	ime Stamp	Level	Time Stamp	Level	Time S amp
L_{eq}	61.6 dB		69.5 dB		--- dB	
$Ls_{(max)}$	83.7 dB	2022-01-18 14:28:21	--- dB		--- dB	
$LS_{(min)}$	34.7 dB	2022-01-19 03:53:43	--- dB		--- dB	
$L_{Peak(max)}$	96.8 dB	2022-01-18 13:52:56	--- dB		--- dB	

Overloads	Count	Duration	OBA Count	OBA Duration
	0	0:00:00.0	0	0:00:00.0

Statistics

LAS 2.0	65.9 dB
LAS 8.0	64.6 dB
LAS 25.0	63.0 dB
LAS 50.0	61.3 dB
LAS 90.0	48.9 dB
LAS 99.0	37.8 dB

Time History



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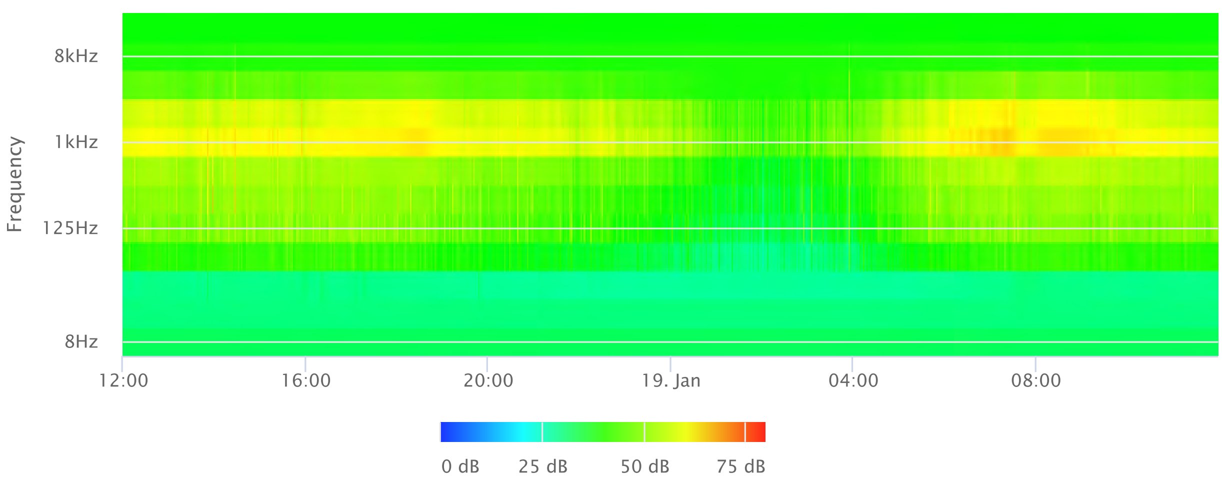
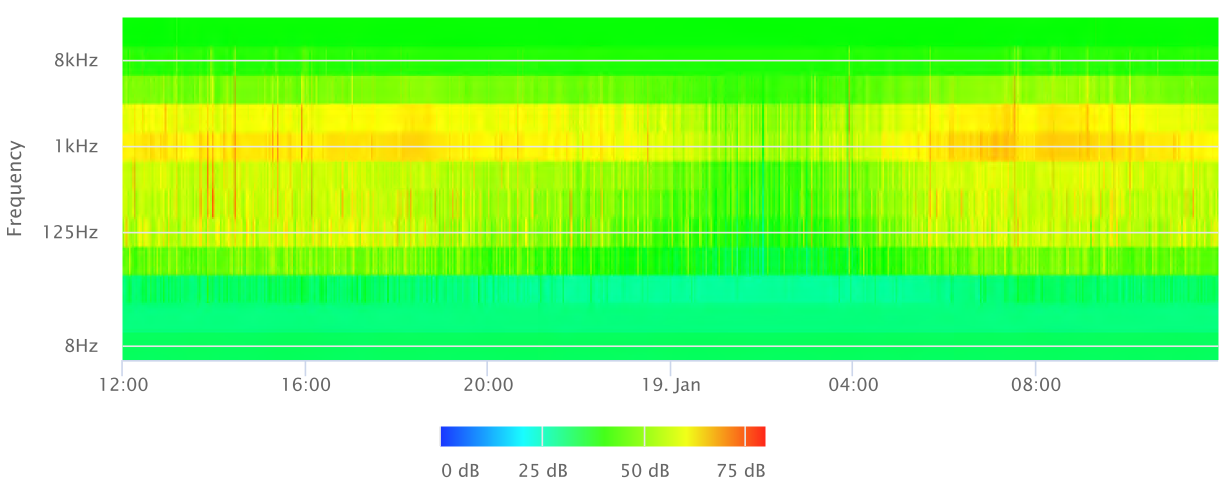


OBA 1/1 Lmax



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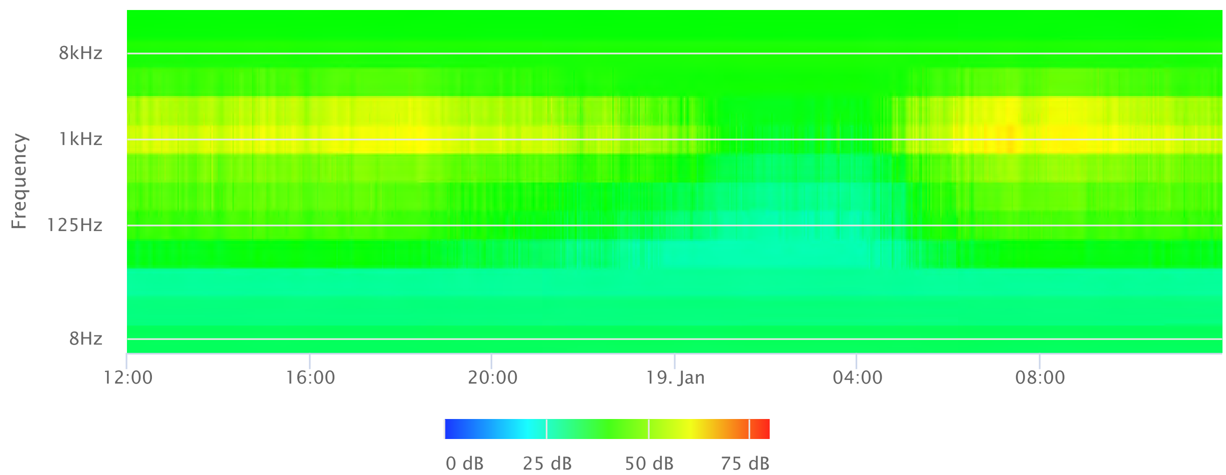
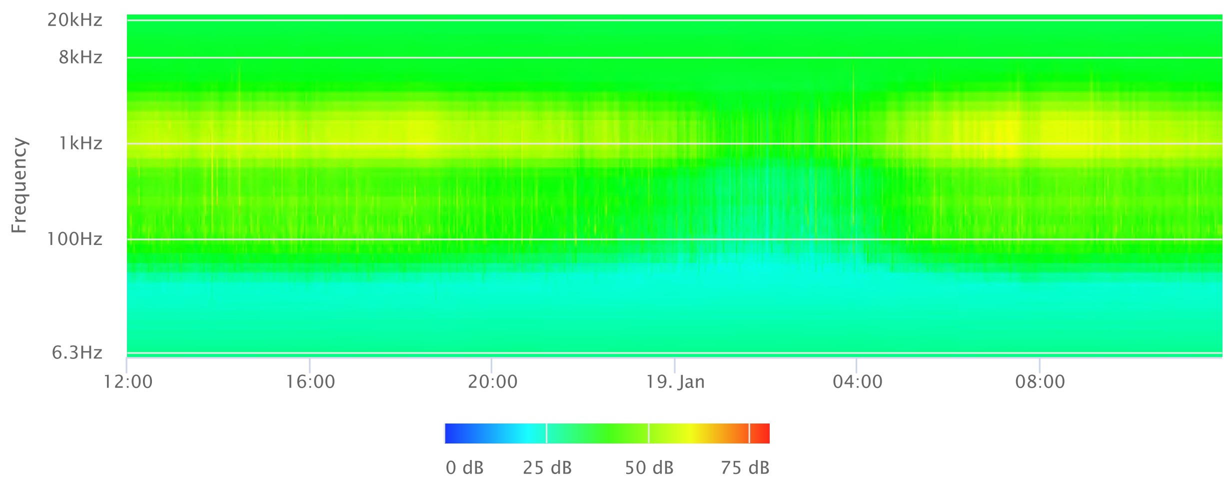


OBA 1/3 Leq



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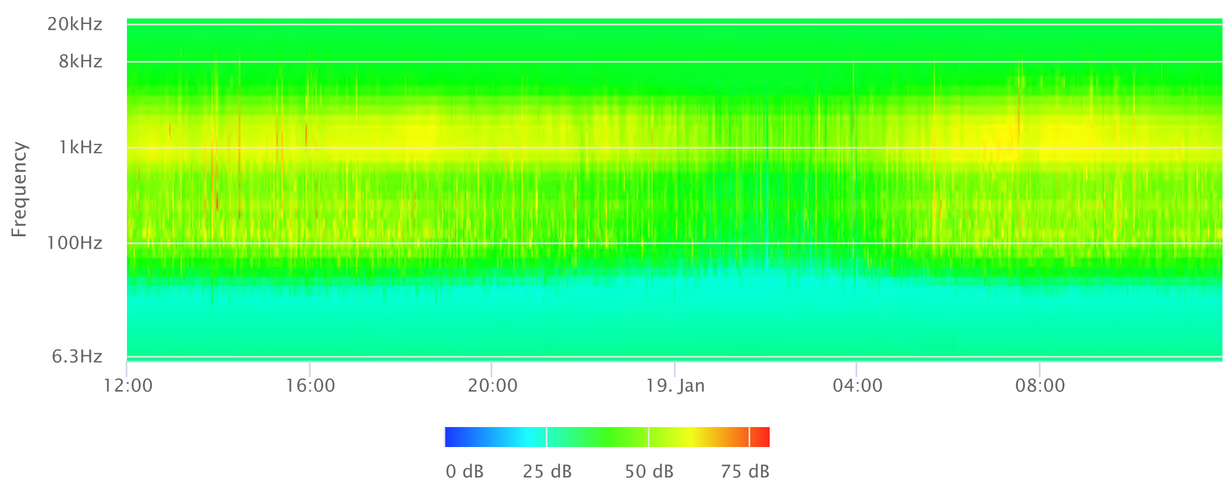
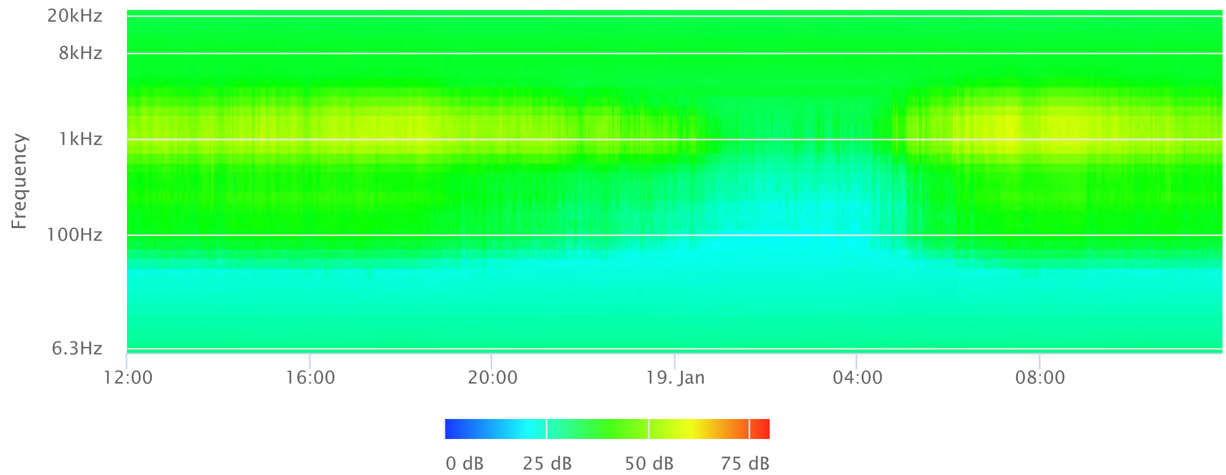


OBA 1/3 Lmin


20kHz
8kHz
1kHz
100Hz
6.3Hz
Frequency
12:00
16:00
20:00
19. Jan
04:00
08:00
0 dB
25 dB
50 dB
75 dB

APPENDIX D

CONSTRUCTION NOISE MODELING

Worksheet Showing Feasibility of Best Management Practices to Achieve Town Code Section 16.20.035 (85 dB at 25 feet for each piece of equipment)

Construction Phase Equipment Item	# of Items	Item Lmax at 25 feet, dBA[1]	Distance to Receptor[3]	Item Usage Percent	Usage Factor	Dist. Correction dB	Usage Adj. dB	Receptor Item Lmax, dBA	Receptor Item Leq, dBA	BMP Reduction	Recommended BMP(s)[4]
Site Preparation											
Tractors/Loaders/Backhoes	1	90	25	40	0.40	0.0	-4.0	90.0	86.0	-1.0	Alternative Equipment, Muffler
Cranes	1	89	25	16	0.16	0.0	-8.0	89.0	81.0	0.0	n/a
Paving Equipment	1	91	25	20	0.20	0.0	-7.0	91.0	84.0	0.0	n/a
Compactor	1	89	25	20	0.20	0.0	-7.0	89.0	82.0	0	n/a
Skid-Steer Loader	1	85	25	40	0.40	0.0	-4.0	85.0	81.0	0.0	n/a
Hand Equipment	1	91	25	50	0.50	0.0	-3.0	91.0	88.0	-3.0	Alternative Equipment, Temporary Solid Barrier
Portable Pump	1	87	25	50	0.50	0.0	-3.0	87.0	84.0	0	n/a
								Log Sum	92.9	-7.9	

Notes:

(1) Source: Referenced noise levels from the Federal Transit Administration (FTA) Transit Noise and Vibration Impact Assessment Manual (September 2018) and the FHWA Roadway Construciton Noise Model User's Guide (January 2006). The Lmax sound levels provided were at 50 feet, levels were projected to 25 feet.

(2) Source: SoundPLAN reference list.

(3) Distance to receptor calculated from the approximate center of the construction work area. Construction noise projected from the center of the project site to nearest sensitive use (property line).

(3) Alternative Equipment would be equipment that does the same job but with a lower sound level. A ten-foot barrier will provide at least 10 dB of sound reduction. After 10-feet, every additional 1 foot in height provides approximately 1 dB of reduction. Mufflers can be designed to provide up to 30 dB of sound reduction.

Receptor - Single-Family Residential to North (without BMPs)

Construction Phase Equipment Item	# of Items	Item Lmax at 25 feet, dBA[1]	Distance to Receptor[3]	Item Usage Percent	Usage Factor	Dist. Correction dB	Usage Adj. dB	Receptor Item Lmax, dBA	Receptor Item Leq, dBA
Site Preparation									
Tractors/Loaders/Backhoes	1	90	50	40	0.40	-6.0	-4.0	84.0	80.0
Cranes	1	89	50	16	0.16	-6.0	-8.0	83.0	75.0
Paving Equipment	1	91	50	20	0.20	-6.0	-7.0	85.0	78.0
Compactor	1	89	50	20	0.20	-6.0	-7.0	83.0	76.0
Skid-Steer Loader	1	85	50	40	0.40	-6.0	-4.0	79.0	75.0
Hand Equipment	1	91	50	50	0.50	-6.0	-3.0	85.0	82.0
Portable Pump	1	87	50	50	0.50	-6.0	-3.0	81.0	78.0
								Log Sum	86.9

Notes:

(1) Source: Referenced noise levels from the Federal Transit Administration (FTA) Transit Noise and Vibration Impact Assessment Manual (September 2018) and the FHWA Roadway Construciton Noise Model User's Guide (January 2006). The Lmax sound levels provided were at 50 feet, levels were projected to 25 feet.

(2) Source: SoundPLAN reference list.

(3) Distance to receptor calculated from the approximate center of the construction work area. Construction noise projected from the center of the project site to nearest sensitive use (property line).

Receptor - Multi-Family Residential to Northwest (without BMPs)

Construction Phase Equipment Item	# of Items	Item Lmax at 25 feet, dBA[1]	Distance to Receptor[3]	Item Usage Percent	Usage Factor	Dist. Correction dB	Usage Adj. dB	Receptor Item Lmax, dBA	Receptor Item Leq, dBA
Site Preparation									
Tractors/Loaders/Backhoes	1	90	384	40	0.40	-23.7	-4.0	66.3	62.3
Cranes	1	89	384	16	0.16	-23.7	-8.0	65.3	57.3
Paving Equipment	1	91	384	20	0.20	-23.7	-7.0	67.3	60.3
Compactor	1	89	384	20	0.20	-23.7	-7.0	65.3	58.3
Skid-Steer Loader	1	85	384	40	0.40	-23.7	-4.0	61.3	57.3
Hand Equipment	1	91	384	50	0.50	-23.7	-3.0	67.3	64.3
Portable Pump	1	87	384	50	0.50	-23.7	-3.0	63.3	60.3
								Log Sum	69.2

Notes:

(1) Source: Referenced noise levels from the Federal Transit Administration (FTA) Transit Noise and Vibration Impact Assessment Manual (September 2018) and the FHWA Roadway Construciton Noise Model User's Guide (January 2006). The Lmax sound levels provided were at 50 feet, levels were projected to 25 feet.

(2) Source: SoundPLAN reference list.

(3) Distance to receptor calculated from the approximate center of the construction work area. Construction noise projected from the center of the project site to nearest sensitive use (property line).

Combined Construction Noise Level (Project Site and Staging Area)

Leq	
86.9	
69.2	
87.0	Combined Noise Level

APPENDIX E

SOUNDPLAN INPUTS AND OUTPUTS - OPERATION

Noise emissions of industry sources

Source name	Reference	Level			Corrections		
		Day	Evening	Night	Cwall	CI	CT
		dB(A)	dB(A)	dB(A)	dB	dB	dB
Pump House Wall 1	Lw/	55.0	-	-	3.0	-	-
Pump House Wall 2	Lw/	55.0	-	-	3.0	-	-
Pump House Wall 3	Lw/	55.0	-	-	3.0	-	-
Pump House Roof	Lw/	55.0	-	-	-	-	-
Transformer wall 1	Lw/	65.0	-	-	3.0	-	-
Transformer wall 2	Lw/	65.0	-	-	3.0	-	-
Transformer wall 3	Lw/	65.0	-	-	3.0	-	-
Transformer wall 4	Lw/	65.0	-	-	3.0	-	-
Generator wall 1	Lw/	59.0	-	-	3.0	-	-
Generator wall 2	Lw/	59.0	-	-	3.0	-	-
Generator wall 3	Lw/	59.0	-	-	3.0	-	-
Generator Wall 4	Lw/	59.0	-	-	3.0	-	-
Generator roof	Lw/	59.0	-	-	-	-	-
Transformer roof	Lw/	65.0	-	-	-	-	-

Receiver list

No.	Receiver name	Building side	Floor	Limit Day dB(A)	Level Day dB(A)	Conflict Day dB
1	R1	-	1.Fl	-	49.1	-
2	R2	-	1.Fl	-	49.1	-
3	R3	-	1.Fl	-	48.8	-
4	R7	North east	1.Fl	-	60.9	-
	R4		1.Fl	-	60.9	-
5	R5	North east	1.Fl	-	63.6	-
6	R6	South east	1.Fl	-	70.6	-

APPENDIX F

VIBRATION WORKSHEETS

GROUNDBORNE VIBRATION ANALYSIS			
Project:	19437 Vasona Pump Station Upgrade		Date: 2/11/22
Source:	Vibratory Roller		
Scenario:	Unmitigated		
Location:	Single-Family Residential to North		
Address:			
PPV = PPVref(25/D)^n (in/sec)			
INPUT			
Equipment = Type	1	Vibratory Roller	INPUT SECTION IN GREEN
PPVref =	0.21	Reference PPV (in/sec) at 25 ft.	
D =	32.00	Distance from Equipment to Receiver (ft)	
n =	1.50	Vibration attenuation rate through the ground	
Note: Based on reference equations from Vibration Guidance Manual, California Department of Transportation, 2006, pgs 38-43.			
RESULTS			
PPV =	0.145	IN/SEC	OUTPUT IN BLUE

Construction Annoyance Vibration Calculations

Source: Federal Transit Administration (FTA), Transit Noise and Vibration Impact Assessment Manual (September 2018).

Eq. 7-3: Lvdistance = Lvref - 30log (D/25)

Lvdistance = the rms velocity level adjsuted for distance, VdB
Lvref = the source reference vibration level at 25 feet, VdB
D = distance from the equipment to th receiver, ft.

Vibratory Roller:

Residential to North: Lvdistance = 94 - 30 log (32/25) = 90.78 VdB

Under Threshold Mitigation Distance: 94 - 30 log (136/25) = 71.93 VdB

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